

COST Action Final Achievement Report (01/10/2018 to 30/09/2022)

CA17118: Identifying Biomarkers Through Translational Research for Prevention and Stratification of Colorectal Cancer

The Action was approved by the Committee of Senior Officials (CSO) on 13-4-2018 and has the MoU reference COST 029/18.

This report was submitted on 17-10-2022 by the Action Chair on behalf of the Management Committee in fulfilment of the requirements of the rules for COST Action Management, Monitoring and Final Assessment.

COST Association AISBL

Avenue du Boulevard - Bolwerklaan 21, box 2 | 1210 Brussels, Belgium
T +32 (0)2 533 3800 | office@cost.eu | www.cost.eu



Funded by the Horizon 2020 Framework Programme
of the European Union

Action leadership and participants

Leadership positions

Position	Name	Contact details	Country*
Chair	Dr Sergi Castellvi-Bel	sbel@recerca.clinic.cat +34932275400_4183	Spain

Position	Name	Contact details	Country*
Vice Chair	Dr Richarda de Voer	richarda.devoer@radboudumc.nl +31243614939	Netherlands

Working groups

#	WG Title	# of participants	WG Leader	Country*
1	Disease risk profiling	110	Dr Claire Palles c.palles@bham.ac.uk	United Kingdom
2	Non-invasive biomarkers	122	Dr Veronika Vymetalkova verculka@yahoo.com	Czech Republic
3	Tumor profiling	139	Dr Jordi Camps jcamps@clinic.cat	Spain
4	Functional genomics and therapy	106	Prof Regine Schneider-Stock regine.schneider-stock@uk-erlangen.de	Germany

Other key leadership positions

Position	Name	Contact details	Country*
Science Communication Coordinator	Dr Miljana Tanic	tanic.miljana@ncrc.ac.rs	
GH Scientific Representative	Dr Sergi Castellvi-Bel	sbel@recerca.clinic.cat	Spain

* The country displayed is:

- for the Action Chair, the country that nominated that person to the Management Committee before they were elected Action Chair;
- for the Vice Chair the country that nominated the person as a Management Committee Member,
- for all other leadership positions, if the person is a MC Member the country displayed is the country of nomination, otherwise it is the country of the person's primary work affiliation.

Participants

COST members having accepted the MoU

AL	02/11/2021	AT	23/05/2018	BE	17/04/2019	BA	04/11/2019	BG	02/11/2021
HR	07/05/2018	CY	02/11/2021	CZ	21/06/2018	DK	12/06/2018	EE	05/06/2019
FI	12/12/2018	FR	15/06/2018	GE	12/04/2022	DE	21/06/2018	EL	20/06/2018
HU	02/11/2021	IS	02/11/2021	IE	28/05/2018	IL	03/05/2018	IT	16/07/2018
LV	21/09/2018	LT	02/11/2021	LU	02/11/2021	MT	09/05/2018	MD	02/11/2021
ME	24/02/2020	NL	29/05/2018	MK	08/05/2018	NO	18/06/2018	PL	02/08/2018
PT	01/06/2018	RO	17/04/2019	RS	21/05/2018	SK	08/03/2019	SI	05/06/2018
ZA	02/11/2021	ES	23/05/2018	SE	10/10/2018	CH	21/09/2018	TR	10/12/2018
UA	12/04/2022	UK	12/06/2018						

Other participants

Institution Name	Country
International Agency for Research on Cancer (IARC-WHO)	International Organisations
EMBL - European Molecular Biology Laboratory	European RTD Organisations

Summary

Main aim/ objective

use innovative translational research to identify colorectal cancer biomarkers for personalized medicine that will improve screening, early detection and disease follow-up, and attain better tumor profiling, state-of-the-art functional characterization of genetic variants and new therapy approaches

The Action addressed this as described below

TRANSCOLOCAN ran successfully with no major concerns during its four years. The only major limitation was the pandemic period in 2020-2021, which precluded the normal progress of most planned activities in that time. The number of participants and countries involved increased during its development. In the end, there were 495 participants from 37 countries, including 31 COST countries, 3 NCC (Tunisia, Armenia and Azerbaijan) and 3 international partner countries (USA, Argentina, Australia). Regarding Working Groups (WGs) participation, the participants distributed in the following manner: WG1 (disease risk profiling) included 198 participants, WG2 (liquid biopsies) had 271 participants, WG3 (tumor profiling) comprised by 293 participants, and WG4 (functional studies and new therapies) was constituted by 194 participants. Participation, as shown, was ample in all 4 WGs, being WG2 and WG3 the most populated. Most participants had interest in two or more WGs. This COST Action also involved industry including 16 SMEs from 12 countries, and patients' associations. They were invited to meetings and other activities and there was a SME committee to help integrate them within this Action and promote interactions with academic participants.

Accomplishment of MoU objectives and deliverables has been achieved for most of them. Accordingly, there are over 100 publications acknowledging this COST Action CA17118 and several projects or proposals have started within the network in the field of colorectal cancer (CRC). More details are available in the different sections of this report and in our dedicated website at <https://www.transcoloncan.eu/>.

TRANSCOLONCAN was fully aware of the nature of the COST funding and its objective to promote education of young researchers and ITC investigators in our field of research. With this in mind, we organized (or collaborated to organize) four successful training schools (TS), in the topics of risk modeling in CRC, liquid biopsies, the chorioallantoic membrane model, and stem cells/organoids.

It has been very rewarding to witness the progress in the field of study of some researchers from ITC countries. It should be highlighted that ITC participants from Czech Republic, Estonia, Malta, North Macedonia, Poland, Portugal, Romania, Serbia and Turkey were among the more interested and active. With two specific examples, it is proof of their positive progress in the last four years by achieving important research results (<https://www.nature.com/articles/s41598-021-99046-w>, Estonia) or obtaining relevant EU funding (Twinning STEPUPPIORS in Serbia).

Gender balance, it was widely promoted during the lifetime of TRANSCOLONCAN. There were 295 women participants at the end of the network, corresponding to 59.6 % (295/495). Gender balance was also endorsed in management roles, and it was observed when accepting participants in activities and meetings. Indeed, it should be highlighted that women were very active in our consortium and they are major contributors to its success. One the major highlights of this Action is the success of the MSCA Doctoral Network ColoMARK on liquid biopsies led by a young female researcher with the collaboration of other participants of this network (<https://www.transcoloncan.eu/news/24/colomark-new-msca-network>).

Action website

<https://www.transcoloncan.eu>

Achievement of MoU objectives, deliverables and additional outputs/ achievements

MoU objectives

The Action reported the following achievement of its specific objectives.

MoU objective	Level of achievement	Further information (hyperlink or other)
To reduce the fragmented research and lack of communication between researchers working on CRC. Nowadays, CRC research needs to come together. This Action would allow the European scientists to embark in a thorough discussion of timely questions and methodological challenges, enable interdisciplinary networking and foster new collaborations.	76 - 100%	<p>The TRANSCOLOCAN consortium driven by the funds provided by COST Action CA17118 for research networking was initially backed up by 74 proposers bringing together participants from 18 EU countries, including six ITC and one international partner country (USA). At the official start of this Action during the kick-off meeting in Brussels (01/10/2018), the number of participants was already 150 and the number of countries raised to 21. Right now, at the end of this initiative, the number of active participants is 495 and countries are 37, including 31 COST countries (Austria, Belgium, Bosnia and Herzegovina, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Israel, Italy, Latvia, Malta, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom), three NCC (Tunisia, Armenia and Azerbaijan) and 3 international partner countries (USA, Argentina, Australia). The countries and participants that joined after kick-off during the first two years were Belgium, Bosnia and Herzegovina, Estonia, Finland, Montenegro, Romania, Slovakia, and the already mentioned Tunisia, Armenia, Azerbaijan, USA and Argentina. In the last year, researchers from Australia also got involved. It should be mentioned that neither Argentina nor Australia did effectively finish the paperwork needed to be officially part of this Action although they participated actively in activities.</p> <p>Importantly, this COST Action also sought involvement of several SMEs from the beginning already at the proposal stage, including 10 companies from 8 different countries. At the end of this Action, there are 16 SMEs from 12 countries [BIOCRATES (Austria), Argenx (Belgium), NOVADISCOVERY (France), HaliuDx-Veracyte (France), Qiagen (Germany), BIOCLARMA (Italy), Applied Biotech (Malta), VyCAP (Netherlands), GenomeScan (Netherlands), REAL RESEARCH (Poland), LABENA (Slovenia), qGENOMICS (Spain), AMADIX (Spain), PRZ Biotech(Turkey), DestiNA (United Kingdom), Oxford Cancer Biomarkers (United Kingdom)] interested and participating in this consortium. They attended meetings, interacted with researchers and made presentations about their own research and developed products.</p> <p>Besides, it should be highlighted that beyond connecting an important number of researchers and SME interested in this Action's objectives, this consortium has permitted the connection between participants with different interest. Meetings, although some of them were WG-oriented, permitted a successful interaction between them. From the beginning of the network, it was evident that there was closer relationship between WG1 and WG2, as well as WG3 and WG4. In fact, besides the expected intra-WG collaborations, some trans-WG have also been established.</p> <p>By stating these increases both in participants and number of countries involved, it can be stated that this MoU objective has been achieved and have reduced the fragmented research and lack of communication between researchers working on CRC. This Action has permitted the European scientists working on this disease to embark in discussions of timely questions and methodological challenges, enable interdisciplinary networking and foster new collaborations.</p>
To permit the interconnection and	76 - 100%	This COST Action brought together colorectal cancer (CRC) researchers from different disciplines such as clinical, germline and somatic genetics,

interdisciplinary networking of researchers working in different CRC fields. By doing so, it will strengthen existing alliances and facilitate new collaborations. Most members will be active in more than one WG, thus allowing substantial crosstalk between groups and interactions between different disciplines.

epigenetics, bioinformatics, cell and molecular biology, microbiology, immunology, biostatistics, epidemiology, health economy and SMEs with the final aim of identifying new CRC biomarkers for prevention, screening and disease management by using a multidisciplinary and multifaceted approach. In the end, the number of participants increased to 495 including new added members from all the mentioned research CRC disciplines. It should be noted that somatic CRC studies and liquid biopsies were the top fields attracting new participants. It should be also highlighted that microbiome studies and metabolomics, remained a minority field within the consortium. Additionally, it should be also considered that this network attracted more basic or translational researchers than clinical investigators. It could be reasoned that the nature of the Action itself precluded a more active involvement of clinicians performing research on CRC. On the other hand, as self-criticism, more contribution from this kind of participants would have permitted a more effective potential translation from bench to bedside of the results achieved during these last 4 years. However, it can be anticipated that some of the obtained achievements are already implemented in the clinic or will be in the near future.

Regarding WG participation, the participants distributed in the following manner: WG1 (disease risk profiling) included 198 participants, WG2 (liquid biopsies) had 271 participants, WG3 (tumor profiling) comprised by 293 participants, and WG4 (functional studies and new therapies) was constituted by 194 participants. Participation as shown was ample in all 4 WGs, being WG2 and WG3 the most populated, although WG1 and WG4 has also a relevant number of members. It should be noted that most participants had interest in two or more WGs. It is interesting to comment on the topics developed in WG2 and WG3 since they corresponded to the more historical subjects of study in the CRC research field (WG3) and the newest one (WG2), so probably it could be expected to be the ones attracting more interest among participants in the network. Quite related, it should be mentioned that during the development of the Action some participants in WG2 were involved in the foundation of two international scientific research societies devoted to the topic of liquid biopsies (European Liquid Biopsy Society, <https://www.ukc.de/english/departments-institutes/institutes/tumor-biology/european-liquid-biopsy-society-elbs/index.html>; International Society of Liquid Biopsy, <https://islb.info/>). Also related, last year some participants in WG2 expressed their intentions of working together to produce a proposal for a future COST Action devoted to this topic to be submitted in a future call.

As previously commented, we agreed that there was more scientific trans-WG connections between WG1-WG2 and WG3-WG4. In order to improve them, organizing meetings, workshops or training schools together was considered as a strategy. In the end, since the pandemic prevented from organizing most activities, meetings including at some extent all WGs were prioritized. This approach permitted to maximize interactions between participants at the end of the Action.

To optimize the technical and medical processes involved in the prevention, screening and CRC management by using new approaches such as the emerging fields of microbiome characterization, metabolomics profiling, circulating tumor cells/nucleic acids, tumor mutational profiling, single-cell genomics, gene editing and

76 - 100%

This consortium showed some fruitful results in their different WGs (more details can be found in the Publications section) in order to optimize the technical and medical processes involved in the prevention, screening and CRC management. Examples in each WG are specified below.

WG1. Thomas et al. Genome-wide Modeling of Polygenic Risk Score in Colorectal Cancer Risk. *American Journal of Human Genetics* 2020; 107(3):432-444; <https://doi.org/10.1016/j.ajhg.2020.07.006>.

WG1. Krigul KL, et al. Using fecal immunochemical tubes for the analysis of the gut microbiome has the potential to improve colorectal cancer screening. *Scientific Reports* 2021;11(1):19603. <https://doi.org/10.1038/s41598-021-99046-w>.

WG1. Gumpenberger T, et al. Untargeted Metabolomics Reveals Major Differences in the Plasma Metabolome between Colorectal Cancer and Colorectal Adenomas. *Metabolites* 2021;11(2):119. <https://doi.org/10.3390/metabo11020119>

immunotherapy. An important socio-economic impact is expected.

WG1. Tarallo S, et al. Stool microRNA profiles reflect different dietary and gut microbiome patterns in healthy individuals. *Gut* 2022;71:1302-1314. <https://doi.org/10.1136/gutjnl-2021-325168>.

WG1. Fernandez-Rozadilla et al. Multi-omic analysis of 100,204 Europeans and Asians identifies 103 new colorectal cancer risk associations and provides insights into disease etiology. *Nature Genetics* 2022, in press.

WG2. Marcuello M, et al. Circulating biomarkers for early detection and clinical management of colorectal cancer. *Molecular Aspects of Medicine* 2019;69:107-122. <https://doi.org/10.1016/j.mam.2019.06.002>.

WG2. Duran-Sanchon et al. Identification and Validation of MicroRNA Profiles in Fecal Samples for Detection of Colorectal Cancer. *Gastroenterology* 2020; 158(4):947-957; <https://doi.org/10.1053/j.gastro.2019.10.005>.

WG2. Sabo AA, et al. Small Non-Coding RNA Profiling in Plasma Extracellular Vesicles of Bladder Cancer Patients by Next-Generation Sequencing: Expression Levels of miR-126-3p and piR-5936 Increase with Higher Histologic Grades. *Cancers* 2020;12(6):1507. <https://doi.org/10.3390/cancers12061507>.

WG2. Cervena K, et al. Mutational landscape of plasma cell-free DNA identifies molecular features associated with therapeutic response in patients with colon cancer. A pilot study. *Mutagenesis* 2021;36(5):358-368. <https://doi.org/10.1093/mutage/geab024>.

WG3. Demirkol Canli S, et al. Evaluation of an aldo-keto reductase gene signature with prognostic significance in colon cancer via activation of epithelial to mesenchymal transition and the p70S6K pathway. *Carcinogenesis* 2020;41(9):1219-1228. <https://doi.org/10.1093/carcin/bgaa072>.

WG3. Galofré C, et al. Tetraploidy-Associated Genetic Heterogeneity Confers Chemo-Radiotherapy Resistance to Colorectal Cancer Cells. *Cancers* 2020;12(5):1118. <https://doi.org/10.3390/cancers12051118>.

WG3. Bogie RMM, et al. Molecular pathways in post-colonoscopy versus detected colorectal cancers: results from a nested case-control study. *Br J Cancer* 2022;126(6):865-873. <https://doi.org/10.1038/s41416-021-01619-z>.

WG3. Martens-de Kemp SR, et al. Overexpression of the miR-17-92 cluster in colorectal adenoma organoids causes a carcinoma-like gene expression signature. *Neoplasia* 2022;32:100820. <https://doi.org/10.1016/j.neo.2022.100820>.

WG4. Grolleman JE, et al. Mutational Signature Analysis Reveals NTHL1 Deficiency to Cause a Multi-tumor Phenotype. *Cancer Cell* 2019 Feb 11;35(2):256-266.e5. <https://doi.org/10.1016/j.ccell.2018.12.011>.

WG4. Mur P, et al. Role of POLE and POLD1 in familial cancer. *Genet Med* 2020;22(12):2089-2100. <https://doi.org/10.1038/s41436-020-0922-2>.

WG4. Bonjoch et al. Germline mutations in FAF1 are associated with hereditary colorectal cancer. *Gastroenterology* 2020;159:227-240; <https://doi.org/10.1053/j.gastro.2020.03.015>.

WG4. Palles C, et al. Germline MBD4 deficiency causes a multi-tumor predisposition syndrome. *Am J Hum Genet.* 2022 May 5;109(5):953-960. <https://doi.org/10.1016/j.ajhg.2022.03.018>.

WG4. Huebner K, et al. ATF2 loss promotes tumor invasion in colorectal cancer cells via upregulation of cancer driver TROP2. *Cell Mol Life Sci* 2022;79(8):423. <https://doi.org/10.1007/s00018-022-04445-5>.

To jointly develop scientific guidelines/r

76 - 100%

SOPs for the detection of CRC and adenomas CTCs, ctDNA, exosomes and TEP have not been developed during the life of this Action. However, the

recommendations for the different methodologies used in each WG through coordination among the involved participants. These documents will be later publicly available and back into the community, including patients, stakeholders and the general population.

following reviews (including those in the special issue – “New insights on the molecular aspects of colorectal cancer” of 10 review research articles in the *Molecular Aspects of Medicine* journal surely serves as an interesting, up-to-date series of recommendations covering the different disciplines and WGs developed in this Action (<https://www.sciencedirect.com/journal/molecular-aspects-of-medicine/vol/69>) and one white paper related to WG2 were produced:

Murphy N, et al. Lifestyle and dietary environmental factors in colorectal cancer susceptibility. *Mol Aspects Med* 2019;69:2-9.
<https://doi.org/10.1016/j.mam.2019.06.005>.

Valle L, et al. Update on genetic predisposition to colorectal cancer and polyposis. *Mol Aspects Med* 2019;69:10-26.
<https://doi.org/10.1016/j.mam.2019.03.001>.

Bonjoch L, et al. Approaches to functionally validate candidate genetic variants involved in colorectal cancer predisposition. *Mol Aspects Med* 2019;69:27-40.
<https://doi.org/10.1016/j.mam.2019.03.004>.

Cornish AJ, et al. Mendelian randomisation: A powerful and inexpensive method for identifying and excluding non-genetic risk factors for colorectal cancer. *Mol Aspects Med* 2019;69:41-47.
<https://doi.org/10.1016/j.mam.2019.01.002>.

Ried T, et al. The landscape of genomic copy number alterations in colorectal cancer and their consequences on gene expression levels and disease outcome. *Mol Aspects Med* 2019;69:48-61.
<https://doi.org/10.1016/j.mam.2019.07.007>.

Grolleman JE, et al. Somatic mutational signatures in polyposis and colorectal cancer. *Mol Aspects Med* 2019;69:62-72.
<https://doi.org/10.1016/j.mam.2019.05.002>.

Vymetalkova V, et al. DNA methylation and chromatin modifiers in colorectal cancer. *Mol Aspects Med* 2019;69:73-92.
<https://doi.org/10.1016/j.mam.2019.04.002>.

Saus E, et al. Microbiome and colorectal cancer: Roles in carcinogenesis and clinical potential. *Mol Aspects Med* 2019;69:93-106.
<https://doi.org/10.1016/j.mam.2019.05.001>.

Marcuello M, et al. Circulating biomarkers for early detection and clinical management of colorectal cancer. *Mol Aspects Med* 2019;69:107-122.
<https://doi.org/10.1016/j.mam.2019.06.002>.

IJsselsteijn ME, et al. Colorectal cancer: A paradigmatic model for cancer immunology and immunotherapy. *Mol Aspects Med* 2019;69:123-129.
<https://doi.org/10.1016/j.mam.2019.05.003>.

Cervena K, et al. Diagnostic and prognostic impact of cell-free DNA in human cancers: Systematic review. *Mutat Res Rev Mutat Res* 2019;781:100-129.
<https://doi.org/10.1016/j.mrrev.2019.05.002>.

Francavilla A, et al. Exosomal microRNAs and other non-coding RNAs as colorectal cancer biomarkers: a review. *Mutagenesis* 2020;35(3):243-260.
<https://doi.org/10.1093/mutage/gez038>.

Schubert SA, et al. The missing heritability of familial colorectal cancer. *Mutagenesis* 2020;35(3):221-231. <https://doi.org/10.1093/mutage/gez027>.

Genua F, et al. The Role of Gut Barrier Dysfunction and Microbiome Dysbiosis in Colorectal Cancer Development. *Front Oncol* 2021;11:626349.
<https://doi.org/10.3389/fonc.2021.626349>.

		<p>Daca Alvarez M, et al. The Inherited and Familial Component of Early-Onset Colorectal Cancer. <i>Cells</i> 2021;10(3):710. https://doi.org/10.3390/cells10030710.</p> <p>Mallafré-Muro C, et al. Comprehensive Volatilome and Metabolome Signatures of Colorectal Cancer in Urine: A Systematic Review and Meta-Analysis. <i>Cancers</i> 2021;13(11):2534. https://doi.org/10.3390/cancers13112534.</p> <p>Haimov D, et al. Nonmalignant Features Associated with Inherited Colorectal Cancer Syndromes-Clues for Diagnosis. <i>Cancers</i> 2022;14(3):628. https://doi.org/10.3390/cancers14030628</p> <p>Connors D, et al. International liquid biopsy standardization alliance white paper. <i>Crit Rev Oncol Hematol</i> 2020;156:103112. https://doi.org/10.1016/j.critrevonc.2020.103112. (WG2 white paper)</p>
<p>To aim towards FAIR data stewardship, i.e. making data Findable, Accessible, Interoperable and Reusable. Therefore, all data acquired within TRANSCOLONCAN will be uploaded in available research IT tools such as OpenClinica, TranSMART and cBioPortal, currently facilitated by Health-RI translational office suite (https://health-ri.org/).</p>	<p>76 - 100%</p>	<p>It is now widely recognised that making research results more accessible to all societal actors contributes to better and more efficient science, and to innovation in the public and private sectors. It is reasoned that open-access policies facilitate a faster and more proficient transmission of science achievements into useful applications for patients and society.</p> <p>As supported by the European Commission, most of the publications produced by participants in this network were published in open-access, making results and data openly available to everyone. Among them, part of the budget of this Action was used to pay 11 open-access research articles authored by participants from 3 or more countries included in the network. During the pandemic period, part of the unused budget due the impossibility of holding face-to-face meetings, was reconducted to pay for additional open-access research articles. Indeed, eight of these articles were paid in the third grant period, which constitutes a clear reflection of this situation.</p> <p>Additionally, following FAIR data stewardship, most data acquired within TRANSCOLONCAN has been uploaded in available research IT tools such as cBioPortal. Indeed, nowadays most biomedical research journals demand authors to proceed with data deposit before submission of articles. It should be commented that in some cases this deposit is not possible immediately due to the nature of the generated data. This exception corresponds to preliminary data not yet completely exploited by the researchers, when making it freely available will not permit the correct development of research in a fair manner. In this case, data could be accessed when requested to authors by establishing a close collaboration. Indeed, there have been several examples of collaborations within this Action that have included the exchange of genomic information between groups for mutual interest.</p> <p>Also, our website and social networks (Facebook, Twitter and LinkedIn) have been an important actors in making visible most of our achievements freely available. Our website is mostly open to the entire community, except for a private section (For members) where more delicate information is only shared within the consortium. The TRANSCOLONCAN website (https://www.transcoloncan.eu/) includes the following sections:</p> <ul style="list-style-type: none"> · News: relevant information about the network. · Events: posting and relevant documentation for all meetings, training schools and online seminars. · Objectives, Working groups and Management Committee sections · Training schools and STSM: specific info for these events · Current participants and institutions: updated list of participants by country and including email · Publications: including those acknowledging the Action and also a

		<p>selection of other publications from participants.</p> <ul style="list-style-type: none"> · Important files: all relevant documents related to this COST Action (e.g. excel file with all participants, memorandum of understanding, COST vademecum) <p>It should be mentioned that the pandemic had a positive effect in the openness of our network. Indeed, events were converted when possible from face-to-face to virtual (meeting October 2020, online seminars series), and, when the pandemic situation permitted to do so, in subsequent events we had virtual and in-person options available. This fact boosted the participation in these events when compared with previous activities where the only option was face-to-face.</p>
<p>To use results derived from this Action as input for future market applications which could foster cooperation with private enterprises, being CRC screening devices a clear example. This Action is focused on timely and realistic research questions in the CRC field so intellectual property (IP) matters are expected.</p>	<p>51 - 75%</p>	<p>Already at the proposal stage, this COST Action involved several SMEs from its beginning including 10 companies from eight different countries. At the end of the network, there were 16 SMEs from 12 countries interested and participating in this consortium. Therefore, this network raised the attention of additional private enterprises during the last four years. They included the following:</p> <ul style="list-style-type: none"> · BIOCRATES (Austria), https://biocrates.com/ · Argenx (Belgium), https://www.argenx.com/ · NOVADISCOVERY (France), https://www.novadiscovery.com/ · HaliDx-Veracyte (France), https://io.veracyte.com/ · Qiagen (Germany), https://www.qiagen.com/ · BIOCLARMA (Italy), http://www.bioclarma.com/en/ · Applied Biotech (Malta), https://mlt.bizdirlib.com/node/7414 · VyCAP (Netherlands), https://www.vycap.com/ · GenomeScan (Netherlands), https://www.genomescan.nl/ · REAL RESEARCH (Poland), https://real-research.com/ · LABENA (Slovenia), http://www.labena.si/ · qGENOMICS (Spain), https://qgenomics.com/en/ · AMADIX (Spain), https://amadix.com/ · PRZ Biotech(Turkey), http://przbiotech.com · DestiNA (United Kingdom), https://destinagenomics.com/ · Oxford Cancer Biomarkers (United Kingdom), https://oxfordbio.com/ <p>Representatives from these companies were invited to meetings and other activities. When invited to meetings, they delivered a talk to present their company to the other participants. These presentations and their presence in person can be considered useful to facilitate contacts between companies and academic participants. In order to help them integrate within this Action and promote further interactions, there was even a SME committee with representatives from some of these companies (https://www.transcoloncan.eu/management/). Besides the above SMEs, there was fluent interaction of several participants with additional companies including SmartBrain, AEVA Biotech, GoodGut, Nauta Technomedical Research, MyBioma or Genomic Health/Exact Sciences Co. Therefore, several European SMEs were supporting TRANSCOLONCAN and they could be involved in translating the accumulated know-how to the market.</p>

		<p>However, as self-criticism for the management of this network, the mentioned companies had a limited fitting within it, and a better engagement of these participants could have been improved by setting the focus a bit more on them during activities. Probably, the focus on science was more prominent during the development of this Action. Consequently, the collaborations between academia and companies were not so many and they could not be highlighted as one of the main achievements. Also, as expressed by many companies when joining this network, their role within this EU project was not completely understood (or not well explained by the management committee). The own nature of COST Actions, with a budget for networking activities but not for research funding itself, was at first confusing for them and caused also lack of interest in some of them. Afterwards, most of them accepted in being part of it and to attend activities.</p> <p>On the other hand, being this Action focused on timely and realistic research questions in the CRC field, intellectual property (IP) matters were expected. The following intellectual property items were reported by participants:</p> <p>Inventors: Toni Gabaldón, Olfat Khannous, Ester Saus, Sergi Castellvi-Bel</p> <p>Patent: Method for screening for colorectal cancer using fecal microbiome profiling</p> <p>EP22179747</p> <p>Inventors: Beatriz Carvalho</p> <p>Patent: Protein biomarkers for detection of colorectal cancer (CRC)</p> <p>2008707;EP13720130.7;14/396,522, NL 2010276;PCT/NL13/50316;15/444,679;EP19201973.5</p> <p>Inventors: Beatriz Carvalho</p> <p>Patent: Protein biomarkers (II) for detection of colorectal cancer in stool</p> <p>NL17172531.0;2017-009-02;2017-009-03;2017-009-04;2017-009-05;2017-009-06</p> <p>Inventors: Beatriz Carvalho</p> <p>Patent: Progression markers for colorectal cancer</p> <p>EP19187894.1;PCT/NL2020/050482</p>
<p>To foster knowledge, know-how, exchange and creation of synergies in a highly relevant topic in the scientific and socio-economic point of views to develop a joint research agenda.</p>	<p>76 - 100%</p>	<p>As stated in MoU Objective 1, the TRANSCOLOCAN consortium has progressed to a final number of active participants of 495 from 37 countries. Also, at the end of this Action, there are 16 SMEs from 12 countries. Therefore, we have been able to gather most main actors in CRC research to create synergies for developing a joint research agenda in the topic of CRC biomarkers.</p> <p>Before giving specific examples of collaborations between participants in this Action, it should be mentioned the participation of some of them in other CRC networks that have facilitated the smoother development of the present consortium. Chronologically, the COGENT (COlorectal cancer GENEtics) consortium (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3269000/pdf/ger059.pdf) was the first to have a prominent role in gathering researchers in the field of study.</p>

		<p>In this network, the focus of study was germline predisposition to this disease and genetic association studies. Within that context, COST Action BM1206-EuCOLONGENE, was awarded to facilitate their networking activities. At the end of BM1206, the interest of participants comprised other topics besides germline predisposition, which was reflected in the present COST Action, including other topics such as risk profiling, liquid biopsies, tumor profiling, functional studies and novel therapies, with a general objective of identifying CRC biomarkers. Other consortia or institutions that should be mentioned are the Genetics and Epidemiology of Colorectal Cancer Consortium (GECCO) is an international collaboration that focuses on the identification and characterization of genetic risk factors and gene-environment interactions for CRC https://www.fredhutch.org/en/research/divisions/public-health-sciences-division/research/cancer-prevention/genetics-epidemiology-colorectal-cancer-consortium-gecco.html, or the Nutrition and Metabolism research branch of the International Agency for Research on Cancer (IARC), the specialized cancer agency of the World Health Organization with the main objective of promoting international collaboration in cancer research (https://www.iarc.who.int/branches-nme/).</p> <p>Specific examples of collaborations between participants are below:</p> <ul style="list-style-type: none"> · Asta Forsti (Germany): with Pavel Vodicka, Ludmila Vodickova & Veronika Vymetalkova (Czech Republic), Andrea Gsur & Stefanie Brezina (Austria), Victor Moreno (Spain). · Seçil Demirkol Canlı (Turkey): with Sreeparna Banerjee (Turkey), Aleksandra Nikolic (Serbia). · Ceres Fernández-Rozadilla (Spain): with Mazda Jenab (France), David Hughes (Ireland), Ellen Heitzer (Austria), Meritxell Gironella & Sergi Castellvi-Bel (Spain), Juan Jose Diaz-Destina Genomics (Spain), Inès Beumer-GenomeScan (Netherlands), Rui Neves (Germany), Tom van Wezel (Netherlands), Pavel Vodicka & Veronika Vymetalkova (Czech Republic), Barbara Pardini & Alessio Naccaratii (Italy), Aleksandra Nikolic (Serbia), Milena Cavic (Serbia), Claire Palles (UK), Richard Houlton (UK), Ian Tomlinson (UK), Ulrike Peters (USA). · Clara Ruiz-Ponte: with Sergi Castellvi-Bel (Spain), Laura Valle & Marta Pineda (Spain), Richarda de Voer (Netherlands). · Sergi Castellvi-Bel: Tom van Wezel, Martjee Nielsen & Richarda de Voer (Netherlands), Ulrike Peters (USA), Trinidad Caldés, Clara Ruiz-Ponte, Pilar Garre, Victor Moreno & Laura Valle (Spain), Mariano Golubicki & Marina Antelo (Argentina), Yael Goldberg (Israel), Milena Cavic (Serbia), Daniel Buchanan (Australia), Stefan Aretz (Germany). · Lukasz Skalniak: with Noel de Miranda · Andrea Gsur (Austria): with Pavel Vodicka (Czech Republic) · Raquel Cumeras: with Mev Domínguez Valentin (Norway), Manuel Teixeira (Portugal). · Cristina Albuquerque (Portugal): with Ceres Fernandez-Rozadilla (Spain), Aleksandra Nikolic (Serbia), Teresa Serra & Marta Lopes (Portugal). · Beatriz Carvalho/Remond Fijneman (Netherlands): with Jordi Camps & Sergi Castellvi-Bel (Spain), Milena Cavic (Serbia), Makis Zoidakis (Greece).
To bring into an interdisciplinary network separate scientific disciplines such as clinical CRC practice, germline	76 - 100%	As stated for MoU Objective 2, this COST Action brought together CRC researchers from many disciplines working on CRC biomarkers and several SMEs with a common aim. In the end, the number of participants went up to 495. Regarding WG participation, the participants distributed in the following manner: WG1 (disease risk profiling) included 198 participants, WG2 (liquid biopsies) had 271 participants, WG3 (tumor profiling) comprised by 293

<p>and somatic genetics, epigenetics, bioinformatics, cell and molecular biology, microbiology, immunology, biostatistics, epidemiology and health economy and the industrial sector.</p>		<p>participants, and WG4 (functional studies and new therapies) was constituted by 194 participants.</p> <p>Interdisciplinarity was evident from the beginning of this network since it was organized in four ample WGs that already comprised different disciplines in nature. In this sense, WG1 (disease risk profiling) included participants involved in the identification of common, low-penetrance germline predisposition variants for CRC, the evaluation of environmental risk factors, microbiome profiling and metabolomics to optimize CRC screening. Accordingly, the scientific profiles comprised clinical researchers, biologists, human geneticists, epidemiologists, bioinformaticians, statisticians, microbiologists or chemists. In this sense, it should be clarified that although both topics are of high interest at the moment, our network failed at gathering a high number of participants working on microbiome or metabolomics. On the other hand, it included a nice representation of the other disciplines. The fact that some participants were part of previous Action BM1206 or are part of GECCO and COGENT, more focused in CRC genetics and epidemiology, probably produced this bias in participation. WG2 (non-invasive-biomarkers) explored liquid biopsies for early detection and monitoring of CRC. In this case, professionals included were clinical scientists, biologists, chemists, or bioinformaticians. The connection of this network with the newly-created scientific societies of liquid biopsies (ISLB and ELBS) promoted a good representation of important actors in this field. WG3 (tumor profiling) explored tumor characterization searching for biomarkers with prognostic and predictive value for patient stratification. Disciplines included clinical scientists, biologists, pathologists or bioinformaticians. Finally, WG4 (functional genomics and therapies) focused on the application of functional genomics for identify new genes involved in CRC (either germline or somatic drivers) and the development of new therapies. In this case, scientists included were clinical scientists, human geneticists, biologists, chemists, immunologists or bioinformaticians. It is worth commenting that in all WGs data scientists gained momentum and became key in the successful development of projects.</p> <p>As previously mentioned, somatic CRC studies and liquid biopsies became the more active fields within this consortium. On the other hand, microbiome studies and metabolomics were populated by minority of participants. Additionally, this network attracted more basic or translational researchers than clinical investigators. It could be reasoned that the nature of the Action itself precluded a more active involvement of clinicians. Being an Action led by basic researchers with its main focus on answering question of basic/translational CRC research probably prevented some clinical participants to join this initiative. However, as a positive outcome, some clinical scientists were actively involved and for instance there are serious intentions of applying for a COST Action with the specific aim of improving CRC screening led by Dr. Carlo Senore (Italy).</p>
<p>To remain open for new interested groups and SMEs working on this field and facilitate their incorporation in a single effective and interactive European research network. This policy will include especially those from Inclusiveness Target Countries (ITC) or with less capacity in the field.</p>	<p>76 - 100%</p>	<p>It is relevant to highlight that TRANSCOLONCAN has remained until its end open to new members developing a research with objectives fitting those in this Action in order to collaborate for mutual benefit. Most new members contacted us and joined later our consortium and started participating actively. As it has been already highlighted in previous sections, the increase in participants/countries was in general very relevant. This situation included also SMEs, which also increased. At the end of this initiative, the number of active participants was 495 from 37 countries, being 31 COST countries, and including 15 ITC countries (Bosnia and Herzegovina, Croatia, Czech Republic, Estonia, Latvia, Malta, Montenegro, North Macedonia, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Turkey), three NCC (Tunisia, Armenia and Azerbaijan) and 3 international partner countries (USA, Argentina, Australia). The number of participants from ITC countries corresponded to 182 (36.8%). Their participation was ample and equally distributed in all WGs, being the allocation of ITC participants per WG as follows: 172 in WG1, 173 in WG2, 171 in WG3 and 162 in WG4. Also at the end of this Action, there were 16 SMEs from 12 countries [BIOCRATES (Austria), Argenx (Belgium), NOVADISCOVERY (France), HaliuDx-Veracyte (France), Qiagen (Germany), BIOCLARMA (Italy), Applied Biotech (Malta), VyCAP (Netherlands),</p>

		<p>GenomeScan (Netherlands), REAL RESEARCH (Poland), LABENA (Slovenia), qGENOMICS (Spain), AMADIX (Spain), PRZ Biotech(Turkey), DestiNA (United Kingdom), Oxford Cancer Biomarkers (United Kingdom)] interested and participating in this consortium. Importantly, four of them were based on ITC countries [Applied Biotech (Malta), REAL RESEARCH (Poland), LABENA (Slovenia), PRZ Biotech(Turkey).</p> <p>Furthermore, about ITC participants, they were actively included from the beginning in the management committee of this Action. They acted as WG chairs in WG2 (Veronika Vymetalkova, CZ and Alper Poyraz-PRZ Biotech, TR), in WG3 (Romina Briffa, MT), and in WG4 (Sreeparna Banerjee, TR). Also, they were leading the Science Communication committee (Aleksandra Nikolic and Miljana Tanic, RS), the STSM committee (Godfrey Grech, MT), the Training schools committee (Aleksandar Dimovski, MK), and were also involved in the Meetings and workshops committee (Manuel Teixeira, PT and Tamara Cacev, HR), the Research funding committee (Pavel Vodicka, CZ) and the SME committee (Claudine Grech Spiteri, MT).</p> <p>Also, with the intention of bringing excellent science to these locations, about half of meetings were organized in ITC countries (MC+WGs meeting in Skopje, North Macedonia; WG4 meeting in Krakow, Poland; MC+WG2 meeting in Belgrade, Serbia; MC+WG3 meeting in Bucharest, Romania). Finally, it should be noted that the enthusiasm and active participation in the activities organized by this network was excellent regarding ITC participants, usually even more active than from those participants from non-ITC. It should be highlighted that ITC participants from Czech Republic, Estonia, Malta, North Macedonia, Poland, Portugal, Romania, Serbia and Turkey were among the more interested and active. With two specific examples, it has been nice to witness their positive progress in the last four years by achieving important research results (https://www.nature.com/articles/s41598-021-99046-w, Estonia) or obtaining relevant EU funding (Twinning STEPUPIORS in Serbia).</p>
<p>To highlight the importance of training about the research topics developed, particularly for early career investigators (ECI) and ITC researchers. Training will take place during meetings, specialized workshops and conferences, STSM and training schools.</p>	<p>76 - 100%</p>	<p>The educational nature of TRANSCOLONCAN was totally understood by the MC and rest of participants. We were fully aware of the nature of the COST funding and its objective to favor collaborations between us and promote education of ECI and ITC investigators in our field of research. With this in mind, we organized (or collaborated to organize) four training schools, including the following:</p> <ul style="list-style-type: none"> - Risk modeling in colorectal cancer; https://www.transcoloncan.eu/events/2/training-school-risk-modeling-in-colorectal-cancer. It organized exclusively four COST Action in Barcelona by Victor Moreno. It was devoted to WG1 and focused on statistics, tools and model building for risk prediction and how to manage data from genetic risk variants. - Stem Cells, organoids and regenerative medicine training school; https://www.transcoloncan.eu/events/9/stem-cells-organoids-and-regenerativemedicine. It was organized in The Netherlands together with the Erasmus University Medical Center Rotterdam. It was dedicated to WG4 and focused on stem cells, embryogenesis, organoids, disease modeling and stem cell applications. - 1st Chorioallantoic membrane (CAM) model conference; https://www.transcoloncan.eu/events/21/1st-chorioallantoic-membrane-cam-model-conference). It was held online due to the pandemic and co-organized by the University Hospital Erlagen (Germany) mainly by Regine Schneider-Stock. It was committed to WG4 and centered on the CAM model as an attractive alternative animal model with respect to the 3R guidelines. - Liquid biopsy training school; https://www.transcoloncan.eu/events/23/training-school-in-aarhus. It took place in Aarhus (Denmark) co-organized by the DCCC Nation Research Center for ctDNA guided cancer mainly with Claus Andersen. It was dedicated to WG2 and focused on detection and analysis of circulating tumor DNA (ctDNA) and circulating tumor cells (CTC).

		<p>Also, it is worthwhile mentioning that some participants from our Action participated in a training school organized by another COST Action (CliniMARK, https://www.transcoloncan.eu/events/7/cost-clinimark-training-school-approaches-for-biomarker-discovery-and-validation). It was mainly organized by Makis Zoidakis and focused on biomarker types, omics approaches and good biomarker practices.</p> <p>These events were very successful and mainly directed and attended by ECI, including also about half of them being ITC researchers.</p> <p>Additionally, we always included an educational workshop to start our meetings related to the WG that we were focusing on. For more details, please visit https://www.transcoloncan.eu/events/. Also, ECI and ITC researchers were invited to meetings in an ample manner and around half of participants in these events were from this category. The idea of including an educational workshop was mostly indeed aimed at them.</p> <p>Regarding STSM and ITC grants, the number of successfully completed STSM was 18 and three for ITC grants. It is unavoidable to comment on the fact that the COVID-19 pandemic prevented, especially in 2020, STSM candidates to pursue in person their short visits. Most of them were directed to ECI, and ITC were granted 9/18 STSM. It is important also to mention that the distribution of STSM was almost equally allocated to the four WGs (WG1 22%, WG2 22%, WG3 22% and WG4 34%).</p>
<p>To take into account constantly in the planned activities ECI and comply with the gender balance and ITC policies.</p>	<p>76 - 100%</p>	<p>As previously stated, we complied with ECI and ITC policies during the lifetime of this Action. At the end of this consortium, the percentage of ECI researchers (taking account those below 45 y.o.) was about 67% (331/495). Young researchers (Ph.D. and early postdoctoral researchers) participated very frequently in activities and contributed with talks about their work and in scientific discussions. Also, training schools and STSMs were almost exclusively directed to them (Ph.D. and early postdoctoral researchers).</p> <p>Regarding ITC participants, the percentage of them was 36.8% (182/495). As previously stated, ITC participants were from 15 countries (Bosnia and Herzegovina, Croatia, Czech Republic, Estonia, Latvia, Malta, Montenegro, North Macedonia, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Turkey). Their participation was ample and equally distributed in all WGs and four SMEs were based on ITC countries [Applied Biotech (Malta), REAL RESEARCH (Poland), LABENA (Slovenia), PRZ Biotech(Turkey)]. ITC participants were actively included from the beginning in the management committee of this Action, acting as WG chairs, leading the Science Communication committee, the STSM committee, the Training schools committee, and involved in the Meetings and workshops committee, the Research funding committee and the SME committee. Also, with the intention of bringing excellent science to these locations, about half of meetings were organized in ITC countries (MC+WGs meeting in Skopje, North Macedonia; WG4 meeting in Krakow, Poland; MC+WG2 meeting in Belgrade, Serbia; MC+WG3 meeting in Bucharest, Romania). Finally, it should be noted that the enthusiasm and active participation in the activities organized by this network was excellent regarding ITC participants, usually even more active than from those participants from non-ITC. It should be highlighted that ITC participants from Czech Republic, Estonia, Malta, North Macedonia, Poland, Portugal, Romania, Serbia and Turkey were among the more interested and active. It is also important to highlight that being part of this Action is helping ITC participants to obtain national funding, as it is reflected in the Proposals/Projects section of this report.</p> <p>Regarding gender balance, it was widely promoted during the lifetime of TRANSCOLONCAN. There were 295 women participants at the end of the network, corresponding to 59.6 % (295/495). Gender balance was also endorsed in management roles, and women were appointed as Vice-chair of the Action, WG leaders (WG1, WG2, WG4) and WG co-leaders (all WGs), Committees leaders (science communication, research funding, SME) and Committees co-leaders (all committees). More details can be found at</p>

		<p>https://www.transcoloncan.eu/management/. Also, when accepting participants in activities and meetings, gender balance was also observed. Usually, it can be considered that women were more active than men, and activities and meetings had a higher percentage of them. Indeed, it should be highlighted that women were very active in our consortium and they are major contributors to its success.</p>
<p>To assure a future growth of scientific strength of the network, guaranteed by the educative and promoting role of the Action.</p>	<p>76 - 100%</p>	<p>To help contributing to make a stronger network in the future, we did believe that educating should be one of the key actors in this network. As previously commented, we channeled our educational efforts for ECI and ITC investigators in our field of research through promoting training schools, STSMs, meetings including instructive workshops, and a big international conference at the end of this Action. For more details, please visit https://www.transcoloncan.eu/events/.</p> <p>Accordingly, we organized four training schools, including the following:</p> <ul style="list-style-type: none"> - Risk modeling in colorectal cancer; https://www.transcoloncan.eu/events/2/training-school-risk-modeling-in-colorectalcancer. - Stem Cells, organoids and regenerative medicine training school; https://www.transcoloncan.eu/events/9/stem-cells-organoids-and-regenerativemedicine. - 1st Chorioallantoic membrane (CAM) model conference; https://www.transcoloncan.eu/events/21/1st-chorioallantoic-membrane-cam-model-conference. - Liquid biopsy training school; https://www.transcoloncan.eu/events/23/training-school-in-aarhus. <p>Additionally, we always included an educational workshop to start our meetings related to the WG that we were focusing on. Also, ECI and ITC researchers were invited to meetings in an ample manner and around half of participants in these events were from this category. The idea of including an educational workshop was mostly indeed aimed at them.</p> <p>Also, and especially during the pandemic period in 2020 and 2021, a series of online seminars including speakers/topics such as Digestive Cancers Europe, the Qiagen company, metabolomics, liquid biopsies, exosomes, cancer mutational signatures, microbiome, germline predisposition to CRC or immune interception in Lynch syndrome. These seminars were recorded to be later available at any time. It is also important to highlight the fact that the pandemic initially impeded in-person meetings (online-only October 2020 meeting) and after that most activities were hybrid, with the possibility to attend in-person but also simultaneously transmitted online through Zoom or similar platform, to the TRANSCOLONCAN Facebook live, and also recorded to be visualized later when necessary. Therefore, these materials can also be considered as educational for those working in the field of study.</p> <p>Regarding STSM and ITC grants, the number of successfully completed STSM was 18 and three for ITC grants. It is unavoidable to comment on the fact that the COVID-19 pandemic prevented, especially in 2020, STSM candidates to pursue in person their short visits. Most of them were directed to ECI, and ITC were granted 9/18 STSM. It is important also to mention that the distribution of STSM was almost equally allocated to the four WGs (WG1 22%, WG2 22%, WG3 22% and WG4 34%).</p> <p>Other forms of educative materials were also available including a video on metabolomics (https://www.transcoloncan.eu/news/2/science-in-1-minute-what-is-metabolomics), participation in the Researchers' Night 2019 (Italy, Serbia and Slovenia) and 2020 (Ireland and Spain; https://www.transcoloncan.eu/news/17/transcoloncan-participants-at-european-researchers-night-2020), video series on gut health (https://www.youtube.com/channel/UCZjdjRj6zlyGmgYAwwbARBQ), a video on genetic predisposition (https://www.transcoloncan.eu/news/18/science-</p>

		<p>in-1-minute-what-is-genetic-predisposition), video on cancer risk prediction (https://videos.iarc.fr/videos/?video=MEDIA210115103248594), and a final dissemination video (short version for social networks and long version https://www.youtube.com/watch?v=qQ7MsA5HVBk), which serve as a nice closing summary.</p> <p>Finally, our website (https://www.transcoloncan.eu/) and social networks (Facebook, Twitter and LinkedIn) were also envisioned to serve as a presentation of this network to the scientific community, including all relevant information about this consortium and all previously mentioned materials.</p>
<p>To ensure the correct integration, dissemination and exploitation of all knowledge and data from TRANSCOLONCAN amongst the research groups of interest, industry sectors and users.</p>	<p>76 - 100%</p>	<p>First of all, TRANSCOLONCAN was open to all participants with common objectives. This consortium progressed to a final number of active participants of 495 from 37 countries. Also, at the end of this Action, there are 16 SMEs from 12 countries. Therefore, we have been able to gather most main actors in CRC research to create synergies for developing a joint research agenda in the topic of CRC biomarkers.</p> <p>Among them, it can be highlighted the active participation in this network of other consortia or institutions in the field of study such as the Genetics and Epidemiology of Colorectal Cancer Consortium (GECCO), an international collaboration that focuses on the identification and characterization of genetic risk factors and gene-environment interactions for CRC https://www.fredhutch.org/en/research/divisions/public-health-sciences-division/research/cancer-prevention/genetics-epidemiology-colorectal-cancer-consortium-gecco.html, or the Nutrition and Metabolism research branch of the International Agency for Research on Cancer (IARC), the specialized cancer agency of the World Health Organization with the main objective of promoting international collaboration in cancer research (https://www.iarc.who.int/branches-nme/).</p> <p>As previously mentioned, this COST Action sought involvement of several SMEs from its beginning. At the end of this Action, there were 16 SMEs from 12 countries [BIOCRATES (Austria), Argenx (Belgium), NOVADISCOVERY (France), HaliuDx-Veracyte (France), Qiagen (Germany), BIOCLARMA (Italy), Applied Biotech (Malta), VyCAP (Netherlands), GenomeScan (Netherlands), REAL RESEARCH (Poland), LABENA (Slovenia), qGENOMICS (Spain), AMADIX (Spain), PRZ Biotech(Turkey), DestiNA (United Kingdom), Oxford Cancer Biomarkers (United Kingdom)] interested and participating in this consortium. They attended meetings, interacted with researchers and made presentations about their own research and developed products. The main idea behind the implication of these SMEs was to facilitate the relationship between basic researchers involved in this consortium and these companies to increase their collaboration in order to bring to market the discoveries achieved by researchers.</p> <p>Finally, this network also wanted to engage patients' organizations, with the objective of reaching the final users of the achieved results. Recently, patients have evolved in the research environment from mere objects of study to active contributors. They can participate in the design of studies, in improving the effective communication with them, or in working together for policy change. We have contacted/collaborated for mutual benefit with the following patients' associations:</p> <ul style="list-style-type: none"> · Asociación Española contra el Cáncer (AECC, Spain) · Fondazione per la Ricerca sul Cancro (AIRC, Italy) · Cancer Research UK (CRUK, UK) · The Patient Voice in Cancer Research (Ireland) · European Association for Cancer Research (EACR) · World Wide Cancer Research (WWCR, UK)

· Digestive Cancers EU (Belgium)

Zorana Maravic and Vassiliki Fotaki from Digestive Cancers Europe (DiCE), the European umbrella organisation of a large group of national Members representing patients with digestive cancer delivered one of the online seminars during the pandemic period (<https://www.youtube.com/watch?v=oBvWDXkNhyY>).

Deliverables

The Action reported the following deliverables:

Deliverable	Timing of deliverable	Further information (hyperlink or other)
Working Group 1. Disease risk profiling - Research publications regarding microbiome, metabolomics profiling and CRC risk modeling.	Delivered	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7956223/
Working Group 1. Disease risk profiling - Software and protocols for CRC risk modeling.	Delivered	https://academic.oup.com/bioinformatics/article/38/2/583/6354350?login=false
Working Group 1. Disease risk profiling - Guidelines for CRC screening in the general population.	Not delivered, but foreseen within 2 years	
Working Group 2. Non-invasive biomarkers - Research publications regarding detection and characterization of CRC and adenomas CTCs, ctDNA, exosomes and TEP.	Delivered	https://www.mdpi.com/2072-6694/12/6/1507
Working Group 2. Non-invasive biomarkers - SOPs for the detection of CRC and adenomas CTCs, ctDNA, exosomes and TEP.	Not delivered, but foreseen within 2 years	https://elifesciences.org/articles/50267
Working Group 2. Non-invasive biomarkers - Guidelines for the inclusion of liquid biopsy for the diagnostic and follow-up of CRC.	Not delivered, but foreseen within 2 years	
Working Group 3. Tumor profiling - Publication of the adenoma and carcinoma genomic profiles and their associated transcriptomic signatures in high profile journals.	Delivered	https://www.mdpi.com/2072-6694/12/5/1118
Working Group 3. Tumor profiling - Tools to delineate and characterize tumor evolution.	Delivered	https://elifesciences.org/articles/50267
Working Group 3. Tumor profiling - Therapeutic impact of intratumor heterogeneity (ITH) in disease management.	Not delivered, but foreseen within 2 years	https://elifesciences.org/articles/50267
Working Group 3. Tumor profiling - Bench-to-bed transferability of biomarkers for prognosis and treatment response prediction.	Not delivered, but foreseen within 2 years	
Working Group 4. Functional genomics and therapy - Research publications about new pathogenicity links for genetic variants and their involvement in germline or somatic CRC predisposition, and about novel CRC immunotherapies.	Delivered	https://www.sciencedirect.com/science/article/pii/S0002929722001148
Working Group 4. Functional genomics and therapy - Protocols for CRISPR-Cas9 gene editing.	Not foreseen	
Working Group 4. Functional genomics and therapy - Guidelines for functional evaluation of candidate gene variants by gene editing.	Delivered	https://www.sciencedirect.com/science/article/pii/S0098299719300068?via%3Dihub
Working Group 4. Functional genomics and therapy - Optimized pipeline for neo-antigen screening in CRC patients.	Delivered	https://genomemedicine.biomedcentral.com/articles/10.1186/s13073-019-0697-8
Working Group 4. Functional genomics and therapy - Clinical protocols for the introduction	Not delivered, but foreseen	

of immunotherapy in (neo-)adjuvant treatment setting.

within 2 years

Additional outputs/ achievements

The following outputs/ achievements also resulted from the Action:

The Action reported 100 publications on the topic of the Action, co-authored by at least two Action participants from two countries participating in the Action, and for which the Action networking was necessary.

Co-authored Action publications - peer-reviewed

1. [doi:10.1016/j.mam.2019.03.001](https://doi.org/10.1016/j.mam.2019.03.001)

Title	Update on genetic predisposition to colorectal cancer and polyposis
Authors	Laura Valle; Richarda M. de Voer; Yael Goldberg; Wenche Sjursen; Asta Försti; Clara Ruiz-Ponte; Trinidad Caldés; Pilar Garré; Maren F. Olsen; Margareta Nordling; Sergi Castellvi-Bel; Kari Hemminki
DOI	doi:10.1016/j.mam.2019.03.001
Type	Journal article
Published in	Molecular Aspects of Medicine
Published by	Elsevier BV
ISSN	0098-2997
Subjects	Clinical Biochemistry; Molecular Medicine; Biochemistry; Molecular Biology; General Medicine
Links	https://api.elsevier.com/content/article/PII:S0098299719300044?httpAccept=text/xml ; https://api.elsevier.com/content/article/PII:S0098299719300044?httpAccept=text/plain

2. [doi:10.1016/j.mam.2019.06.002](https://doi.org/10.1016/j.mam.2019.06.002)

Title	Circulating biomarkers for early detection and clinical management of colorectal cancer
Authors	María Marcuello; Veronika Vymetalkova; Rui P.L. Neves; Saray Duran-Sanchon; Hege Marie Vedeld; Emma Tham; Guus van Dalum; Georg Flügen; Vanesa Garcia-Barberan; Remond JA. Fijneman; Antoni Castells; Pavel Vodicka; Guro E. Lind; Nikolas H. Stoecklein; Ellen Heitzer; Meritxell Gironella
DOI	doi:10.1016/j.mam.2019.06.002
Type	Journal article
Published in	Molecular Aspects of Medicine
Published by	Elsevier BV
ISSN	0098-2997
Links	https://api.elsevier.com/content/article/PII:S0098299719300093?httpAccept=text/xml ; https://api.elsevier.com/content/article/PII:S0098299719300093?httpAccept=text/plain

3. [doi:10.1016/j.mam.2019.03.004](https://doi.org/10.1016/j.mam.2019.03.004)

Title	Approaches to functionally validate candidate genetic variants involved in colorectal cancer predisposition
Authors	Laia Bonjoch; Pilar Mur; Coral Arnau-Collell; Gardenia Vargas-Parra; Bahar Shamloo; Sebastià Franch-Expósito; Marta Pineda; Gabriel

<p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subjects</p> <p>Links</p>	<p>Capellà; Batu Erman; Sergi Castellví-Bel doi:10.1016/j.mam.2019.03.004 Journal article Molecular Aspects of Medicine Elsevier BV 0098-2997 Clinical Biochemistry; Molecular Medicine; Biochemistry; Molecular Biology; General Medicine https://api.elsevier.com/content/article/PII:S0098299719300068?httpAccept=text/xml; https://api.elsevier.com/content/article/PII:S0098299719300068?httpAccept=text/plain</p>
<p>4. doi:10.1053/j.gastro.2019.12.012</p> <p>Title</p> <p>Authors</p>	<p>Cumulative Burden of Colorectal Cancer–Associated Genetic Variants Is More Strongly Associated With Early-Onset vs Late-Onset Cancer Alexi N. Archambault; Yu-Ru Su; Jihyoun Jeon; Minta Thomas; Yi Lin; David V. Conti; Aung Ko Win; Lori C. Sakoda; Iris Lansdorp-Vogelaar; Elisabeth F.P. Peterse; Ann G. Zauber; David Duggan; Andreana N. Holowatyj; Jeroen R. Huyghe; Hermann Brenner; Michelle Cotterchio; Stéphane Bézieau; Stephanie L. Schmit; Christopher K. Edlund; Melissa C. Southey; Robert J. MacInnis; Peter T. Campbell; Jenny Chang-Claude; Martha L. Slattery; Andrew T. Chan; Amit D. Joshi; Mingyang Song; Yin Cao; Michael O. Woods; Emily White; Stephanie J. Weinstein; Cornelia M. Ulrich; Michael Hoffmeister; Stephanie A. Bien; Tabitha A. Harrison; Jochen Hampe; Christopher I. Li; Clemens Schafmayer; Kenneth Offit; Paul D. Pharoah; Victor Moreno; Annika Lindblom; Alicja Wolk; Anna H. Wu; Li Li; Marc J. Gunter; Andrea Gsur; Temitope O. Keku; Rachel Pearlman; D. Timothy Bishop; Sergi Castellví-Bel; Leticia Moreira; Pavel Vodicka; Ellen Kampman; Graham G. Giles; Demetrius Albanes; John A. Baron; Sonja I. Berndt; Stefanie Brezina; Stephan Buch; Daniel D. Buchanan; Antonia Trichopoulou; Gianluca Severi; María-Dolores Chirlaque; María-José Sánchez; Domenico Palli; Tilman Kühn; Neil Murphy; Amanda J. Cross; Andrea N. Burnett-Hartman; Stephen J. Chanock; Albert de la Chapelle; Douglas F. Easton; Faye Elliott; Dallas R. English; Edith J.M. Feskens; Liesel M. FitzGerald; Phyllis J. Goodman; John L. Hopper; Thomas J. Hudson; David J. Hunter; Eric J. Jacobs; Corinne E. Joshu; Sébastien Küry; Sanford D. Markowitz; Roger L. Milne; Elizabeth A. Platz; Gad Rennert; Hedy S. Rennert; Fredrick R. Schumacher; Robert S. Sandler; Daniela Seminara; Catherine M. Tangen; Stephen N. Thibodeau; Amanda E. Toland; Franzel J.B. van Duijnhoven; Kala Visvanathan; Ludmila</p>

- Vodickova; [John D. Potter](#); Satu Männistö; Korbinian Weigl; Jane Figueiredo; Vicente Martín; [Susanna C. Larsson](#); Patrick S. Parfrey; [Wen-Yi Huang](#); Heinz-Josef Lenz; Jose E. Castela; [Manuela Gago-Dominguez](#); Victor Muñoz-Garzón; Christoph Mancao; Christopher A. Haiman; Lynne R. Wilkens; Erin Siegel; [Elizabeth Barry](#); Ban Younghusband; [Bethany Van Guelpen](#); [Sophia Harlid](#); Anne Zeleniuch-Jacquotte; [Peter S. Liang](#); Mengmeng Du; Graham Casey; Noralane M. Lindor; Loic Le Marchand; Steven J. Gallinger; [Mark A. Jenkins](#); Polly A. Newcomb; Stephen B. Gruber; [Robert E. Schoen](#); [Heather Hampel](#); Douglas A. Corley; Li Hsu; Ulrike Peters; [Richard B. Hayes](#)
[doi:10.1053/j.gastro.2019.12.012](https://doi.org/10.1053/j.gastro.2019.12.012)
- DOI
Type
Published in
Published by
ISSN
Subject
Links
- Journal article
Gastroenterology
Elsevier BV
[0016-5085](#)
Gastroenterology
<https://api.elsevier.com/content/article/PII:S0016508519419379?httpAccept=text/xml>;
<https://api.elsevier.com/content/article/PII:S0016508519419379?httpAccept=text/plain>
5. [doi:10.1136/jmedgenet-2019-106374](https://doi.org/10.1136/jmedgenet-2019-106374)
Title
Authors
- Colorectal cancer genetic variants are also associated with serrated polyposis syndrome susceptibility
Coral Arnau-Collell; Yasmin Soares de Lima; [Marcos Díaz-Gay](#); Jenifer Muñoz; Sabela Carballal; Laia Bonjoch; Leticia Moreira; Juan José Lozano; Teresa Ocaña; Miriam Cuatrecasas; Aranzazu Díaz de Bustamante; Antoni Castells; Gabriel Capellà; Luis Bujanda; Joaquin Cubiella; Daniel Rodríguez-Alcalde; Francesc Balaguer; Clara Ruiz-Ponte; Laura Valle; Victor Moreno; [Sergi Castellvi-Bel](#)
[doi:10.1136/jmedgenet-2019-106374](https://doi.org/10.1136/jmedgenet-2019-106374)
- DOI
Type
Published in
Published by
ISSNs
Subjects
Link
- Journal article
Journal of Medical Genetics
BMJ
[0022-2593](#); [1468-6244](#)
Genetics(clinical); Genetics
<https://syndication.highwire.org/content/doi/10.1136/jmedgenet-2019-106374>
6. [doi:10.1007/s00432-019-02977-1](https://doi.org/10.1007/s00432-019-02977-1)
Title
Authors
- Loss of enhancer of zeste homologue 2 (EZH2) at tumor invasion front is correlated with higher aggressiveness in colorectal cancer cells
Julian Böhm; Julienne Kathrin Muenzner; Aylin Caliskan; Benardina Ndreshkjana; Katharina Erlenbach-Wünsch; Susanne Merkel; Roland Croner; Tilman T. Rau; Carol Immanuel Geppert; Arndt Hartmann; Adriana Vial Roehe; [Regine Schneider-Stock](#)

- | | |
|---|---|
| <p>DOI
Type
Published in

Published by
ISSNs
Subjects
Links</p> | <p>doi:10.1007/s00432-019-02977-1
Journal article
Journal of Cancer Research and Clinical
Oncology
Springer Science and Business Media LLC
0171-5216; 1432-1335
Cancer Research; Oncology; General Medicine
http://link.springer.com/content/pdf/10.1007/s00432-019-02977-1.pdf;
http://link.springer.com/article/10.1007/s00432-019-02977-1/fulltext.html</p> |
| <p>7. doi:10.1053/j.gastro.2020.03.015
Title

Authors

DOI
Type
Published in
Published by
ISSN
Subject
Links</p> | <p>Germline Mutations in FAF1 Are Associated With Hereditary Colorectal Cancer
Laia Bonjoch; Sebastià Franch-Expósito; Pilar Garre; Sami Belhadj; Jenifer Muñoz; Coral Arnau-Collell; Marcos Díaz-Gay; Anna Gratacós-Mulleras; Giulia Raimondi; Clara Esteban-Jurado; Yasmin Soares de Lima; Cristina Herrera-Pariente; Miriam Cuatrecasas; Teresa Ocaña; Antoni Castells; Cristina Fillat; Gabriel Capellá; Francesc Balaguer; Trinidad Caldés; Laura Valle; Sergi Castellví-Bel
doi:10.1053/j.gastro.2020.03.015
Journal article
Gastroenterology
Elsevier BV
0016-5085
Gastroenterology
https://api.elsevier.com/content/article/PII:S001650852030336X?httpAccept=text/xml;
https://api.elsevier.com/content/article/PII:S001650852030336X?httpAccept=text/plain</p> |
| <p>8. doi:10.1002/cam4.2804
Title

Authors

DOI
Type
Published in
Published by
ISSNs
Links</p> | <p>Epistatic effect of TLR3 and cGAS□STING□IKKε□TBK1□IFN signaling variants on colorectal cancer risk
Calogerina Catalano; Miguel Inacio Silva Filho; Christoph Frank; Shun Lu; Katerina Jiraskova; Veronika Vymetalkova; Miroslav Levy; Vaclav Liska; Ondrej Vycital; Alessio Naccarati; Ludmila Vodickova; Kari Hemminki; Pavel Vodicka; Alexander N. R. Weber; Asta Försti
doi:10.1002/cam4.2804
Journal article
Cancer Medicine
Wiley
2045-7634; 2045-7634
https://api.wiley.com/onlinelibrary/tdm/v1/articles/10.1002%2Fcam4.2804;
https://onlinelibrary.wiley.com/doi/pdf/10.1002/cam4.2804; https://onlinelibrary.wiley.com/doi/full-xml/10.1002/cam4.2804</p> |
| <p>9. doi:10.1016/j.mrrev.2019.05.002
Title</p> | <p>Diagnostic and prognostic impact of cell-free DNA</p> |

- | | |
|---|---|
| <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Links</p> | <p>in human cancers: Systematic review
Klara Cervena; Pavel Vodicka; Veronika Vymetalkova
doi:10.1016/j.mrrev.2019.05.002
Journal article
Mutation Research/Reviews in Mutation Research
Elsevier BV
1383-5742
https://api.elsevier.com/content/article/PII:S1383574219300080?httpAccept=text/xml;
https://api.elsevier.com/content/article/PII:S1383574219300080?httpAccept=text/plain</p> |
| <p>10. doi:10.3390/cancers11030362</p> <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subjects</p> <p>Link</p> | <p>Integrated Analysis of Germline and Tumor DNA Identifies New Candidate Genes Involved in Familial Colorectal Cancer
Marcos Díaz-Gay; Sebastià Franch-Expósito; Coral Arnau-Collell; Solip Park; Fran Supek; Jenifer Muñoz; Laia Bonjoch; Anna Gratacós-Mulleras; Paula Sánchez-Rojas; Clara Esteban-Jurado; Teresa Ocaña; Miriam Cuatrecasas; Maria Vila-Casadesús; Juan Lozano; Genis Parra; Steve Laurie; Sergi Beltran; Antoni Castells; Luis Bujanda; Joaquín Cubiella; Francesc Balaguer; Sergi Castellví-Bel
doi:10.3390/cancers11030362
Journal article
Cancers
MDPI AG
2072-6694
Cancer Research; Oncology
https://www.mdpi.com/2072-6694/11/3/362/pdf</p> |
| <p>11. doi:10.1093/mutage/gez038</p> <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSNs</p> <p>Subjects</p> <p>Link</p> | <p>Exosomal microRNAs and other non-coding RNAs as colorectal cancer biomarkers: a review
Antonio Francavilla; Szimonetta Turoczi; Sonia Tarallo; Pavel Vodicka; Barbara Pardini; Alessio Naccarati
doi:10.1093/mutage/gez038
Journal article
Mutagenesis
Oxford University Press (OUP)
0267-8357; 1464-3804
Toxicology; Genetics(clinical); Genetics; Health, Toxicology and Mutagenesis
http://academic.oup.com/mutage/article-pdf/35/3/243/33484802/gez038.pdf</p> |
| <p>12. doi:10.1038/s41598-020-65975-1</p> <p>Title</p> <p>Authors</p> | <p>Centrosome reduction in newly-generated tetraploid cancer cells obtained by separase depletion
Claudia Galofré; Elena Asensio; Maria Ubach; Irianna M. Torres; Isabel Quintanilla; Antoni Castells; Jordi Camps</p> |

- | | |
|--|--|
| <p>DOI
Type
Published in
Published by
ISSN
Subject
Links</p> | <p>doi:10.1038/s41598-020-65975-1
Journal article
Scientific Reports
Springer Science and Business Media LLC
2045-2322
Multidisciplinary
http://www.nature.com/articles/s41598-020-65975-1.pdf;
http://www.nature.com/articles/s41598-020-65975-1</p> |
| <p>13. doi:10.3390/cancers12051118
Title

Authors

DOI
Type
Published in
Published by
ISSN
Subjects
Link</p> | <p>Tetraploidy-Associated Genetic Heterogeneity Confers Chemo-Radiotherapy Resistance to Colorectal Cancer Cells
Claudia Galofré; Öykü Gönül Geyik; Elena Asensio; Darawalee Wangsa; Daniela Hirsch; Carolina Parra; Jordi Saez; Meritxell Mollà; Zeynep Yüce; Antoni Castells; Thomas Ried; Jordi Camps
doi:10.3390/cancers12051118
Journal article
Cancers
MDPI AG
2072-6694
Cancer Research; Oncology
https://www.mdpi.com/2072-6694/12/5/1118/pdf</p> |
| <p>14. doi:10.1016/j.ccell.2018.12.011
Title

Authors

DOI
Type
Published in
Published by
ISSN
Subjects</p> | <p>Mutational Signature Analysis Reveals NTHL1 Deficiency to Cause a Multi-tumor Phenotype
Judith E. Grolleman; Richarda M. de Voer; Fadwa A. Elsayed; Maartje Nielsen; Robbert D.A. Weren; Claire Palles; Marjolijn J.L. Ligtenberg; Janet R. Vos; Sanne W. ten Broeke; Noel F.C.C. de Miranda; Renske A. Kuiper; Eveline J. Kamping; Erik A.M. Jansen; M. Elisa Vink-Börger; Isabell Popp; Alois Lang; Isabel Spier; Robert Hüneburg; Paul A. James; Na Li; Marija Staninova; Helen Lindsay; David Cockburn; Olivera Spasic-Boskovic; Mark Clendenning; Kevin Sweet; Gabriel Capellá; Wenche Sjursen; Hildegunn Høberg-Vetti; Marjolijn C. Jongmans; Kornelia Neveling; Ad Geurts van Kessel; Hans Morreau; Frederik J. Hes; Rolf H. Sijmons; Hans K. Schackert; Clara Ruiz-Ponte; Dagmara Dymerska; Jan Lubinski; Barbara Rivera; William D. Foulkes; Ian P. Tomlinson; Laura Valle; Daniel D. Buchanan; Sue Kenwick; Julian Adlard; Aleksandar J. Dimovski; Ian G. Campbell; Stefan Aretz; Detlev Schindler; Tom van Wezel; Noline Hoogerbrugge; Roland P. Kuiper
doi:10.1016/j.ccell.2018.12.011
Journal article
Cancer Cell
Elsevier BV
1535-6108
Cell Biology; Cancer Research; Oncology</p> |

- Links <https://api.elsevier.com/content/article/PII:S153561081830583X?httpAccept=text/xml>;
<https://api.elsevier.com/content/article/PII:S153561081830583X?httpAccept=text/plain>
15. [doi:10.1016/j.mam.2019.05.002](https://doi.org/10.1016/j.mam.2019.05.002)
- Title Somatic mutational signatures in polyposis and colorectal cancer
- Authors Judith E. Grolleman; Marcos Díaz-Gay; Sebastià Franch-Expósito; Sergi Castellví-Bel; Richarda M. de Voer
- DOI [doi:10.1016/j.mam.2019.05.002](https://doi.org/10.1016/j.mam.2019.05.002)
- Type Journal article
- Published in Molecular Aspects of Medicine
- Published by Elsevier BV
- ISSN [0098-2997](https://doi.org/10.1016/j.mam.2019.05.002)
- Subjects Clinical Biochemistry; Molecular Medicine; Biochemistry; Molecular Biology; General Medicine
- Links <https://api.elsevier.com/content/article/PII:S009829971930007X?httpAccept=text/xml>;
<https://api.elsevier.com/content/article/PII:S009829971930007X?httpAccept=text/plain>
16. [doi:10.1093/mutage/gez041](https://doi.org/10.1093/mutage/gez041)
- Title The activating transcription factor 2: an influencer of cancer progression
- Authors Kerstin Huebner; Jan Procházka; Ana C Monteiro; Vijayalakshmi Mahadevan; [Regine Schneider-Stock](https://doi.org/10.1093/mutage/gez041)
- DOI [doi:10.1093/mutage/gez041](https://doi.org/10.1093/mutage/gez041)
- Type Journal article
- Published in Mutagenesis
- Published by Oxford University Press (OUP)
- ISSNs [0267-8357](https://doi.org/10.1093/mutage/gez041); [1464-3804](https://doi.org/10.1093/mutage/gez041)
- Subjects Toxicology; Genetics(clinical); Genetics; Health, Toxicology and Mutagenesis
- Link <http://academic.oup.com/mutage/article-pdf/34/5-6/375/31571140/gez041.pdf>
17. [doi:10.1002/path.5369](https://doi.org/10.1002/path.5369)
- Title Proteins in stool as biomarkers for non-invasive detection of colorectal adenomas with high risk of progression
- Authors [Malgorzata A Komor](https://doi.org/10.1002/path.5369); Linda JW Bosch; Veerle MH Coupé; Christian Rausch; Thang V Pham; Sander R Piersma; Sandra Mongera; Chris JJ Mulder; Evelien Dekker; Ernst J Kuipers; Mark A Wiel; Beatriz Carvalho; [Remond JA Fijneman](https://doi.org/10.1002/path.5369); Connie R Jimenez; Gerrit A Meijer; [Meike Wit](https://doi.org/10.1002/path.5369)
- DOI [doi:10.1002/path.5369](https://doi.org/10.1002/path.5369)
- Type Journal article
- Published in The Journal of Pathology
- Published by Wiley
- ISSNs [0022-3417](https://doi.org/10.1002/path.5369); [1096-9896](https://doi.org/10.1002/path.5369)
- Subject Pathology and Forensic Medicine
- Links <https://onlinelibrary.wiley.com/doi/pdf/10.1002/path.5369>;

<https://onlinelibrary.wiley.com/doi/full-xml/10.1002/path.5369>

18. [doi:10.1038/s41419-020-2340-4](https://doi.org/10.1038/s41419-020-2340-4)

Title

EMT transcription factor ZEB1 alters the epigenetic landscape of colorectal cancer cells
 Pablo Lindner; Sushmita Paul; Markus Eckstein; Chuanpit Hampel; Julienne K. Muenzner; Katharina Erlenbach-Wuensch; [Husayn P. Ahmed](#); Vijayalakshmi Mahadevan; Thomas Brabletz; Arndt Hartmann; Julio Vera; Regine Schneider-Stock

Authors

DOI

[doi:10.1038/s41419-020-2340-4](https://doi.org/10.1038/s41419-020-2340-4)

Type

Journal article

Published in

Cell Death & Disease

Published by

Springer Science and Business Media LLC

ISSN

[2041-4889](#)

Subjects

Immunology; Cell Biology; Cancer Research; Cellular and Molecular Neuroscience

Links

<http://www.nature.com/articles/s41419-020-2340-4.pdf>;
<http://www.nature.com/articles/s41419-020-2340-4>

19. [doi:10.1136/gutjnl-2019-319313](https://doi.org/10.1136/gutjnl-2019-319313)

Title

Systematic meta-analyses, field synopsis and global assessment of the evidence of genetic association studies in colorectal cancer

Authors

Zahra Montazeri; Xue Li; Christine Nyiraneza; Xiangyu Ma; Maria Timofeeva; Victoria Svinti; Xiangrui Meng; Yazhou He; Yacong Bo; Samuel Morgan; Sergi Castellví-Bel; Clara Ruiz-Ponte; [Ceres Fernández-Rozadilla](#); Ángel Carracedo; Antoni Castells; Timothy Bishop; [Daniel Buchanan](#); Mark A Jenkins; Temitope O Keku; Annika Lindblom; Fränzel J B van Duijnhoven; Anna Wu; Susan M Farrington; Malcolm G Dunlop; Harry Campbell; [Evropi Theodoratou](#); [Wei Zheng](#); [Julian Little](#)
[doi:10.1136/gutjnl-2019-319313](https://doi.org/10.1136/gutjnl-2019-319313)

DOI

Journal article

Type

Gut

Published in

BMJ

Published by

[0017-5749](#); [1468-3288](#)

ISSNs

Gastroenterology

Subject

<https://syndication.highwire.org/content/doi/10.1136/gutjnl-2019-319313>

Link

20. [doi:10.1038/s41419-019-1611-4](https://doi.org/10.1038/s41419-019-1611-4)

Title

Combination of 5-fluorouracil and thymoquinone targets stem cell gene signature in colorectal cancer cells

Authors

Benardina Ndreshkjana; Aysun Çapci; Volker Klein; Pithi Chanvorachote; Julienne K. Muenzner; Kerstin Huebner; Sara Steinmann; Katharina Erlenbach-Wuensch; Carol I. Geppert; Abbas Agaimy; Farah Ballout; Chirine El-Baba; Hala Gali-Muhtasib; Adriana Vial Roehé; Arndt

- | | |
|--|--|
| <p>DOI
Type
Published in
Published by
ISSN
Subjects

Links</p> | <p>Hartmann; Svetlana B. Tsogoeva; Regine Schneider-Stock
doi:10.1038/s41419-019-1611-4
Journal article
Cell Death & Disease
Springer Science and Business Media LLC
2041-4889
Immunology; Cell Biology; Cancer Research; Cellular and Molecular Neuroscience
http://www.nature.com/articles/s41419-019-1611-4.pdf;
http://www.nature.com/articles/s41419-019-1611-4</p> |
| <p>21. doi:10.3390/cancers11091343
Title

Authors

DOI
Type
Published in
Published by
ISSN
Subjects
Link</p> | <p>Epigenetic Regulation of p21cip1/waf1 in Human Cancer
Matthias Ocker; Samar Al Bitar; Ana Carolina Monteiro; Hala Gali-Muhtasib; Regine Schneider-Stock
doi:10.3390/cancers11091343
Journal article
Cancers
MDPI AG
2072-6694
Cancer Research; Oncology
https://www.mdpi.com/2072-6694/11/9/1343/pdf</p> |
| <p>22. doi:10.1038/s41467-020-14389-8
Title

Authors</p> | <p>Physical activity and risks of breast and colorectal cancer: a Mendelian randomisation analysis
Nikos Papadimitriou; Niki Dimou; Konstantinos K. Tsilidis; Barbara Banbury; Richard M. Martin; Sarah J. Lewis; Nabila Kazmi; Timothy M. Robinson; Demetrius Albanes; Krasimira Aleksandrova; Sonja I. Berndt; D. Timothy Bishop; Hermann Brenner; Daniel D. Buchanan; Bas Bueno-de-Mesquita; Peter T. Campbell; Sergi Castellví-Bel; Andrew T. Chan; Jenny Chang-Claude; Merete Ellingjord-Dale; Jane C. Figueiredo; Steven J. Gallinger; Graham G. Giles; Edward Giovannucci; Stephen B. Gruber; Andrea Gsur; Jochen Hampe; Heather Hampel; Sophia Harlid; Tabitha A. Harrison; Michael Hoffmeister; John L. Hopper; Li Hsu; José María Huerta; Jeroen R. Huyghe; Mark A. Jenkins; Temitope O. Keku; Tilman Kühn; Carlo La Vecchia; Loïc Le Marchand; Christopher I. Li; Li Li; Annika Lindblom; Noralane M. Lindor; Brigid Lynch; Sanford D. Markowitz; Giovanna Masala; Anne M. May; Roger Milne; Evelyn Monninkhof; Lorena Moreno; Victor Moreno; Polly A. Newcomb; Kenneth Offit; Vittorio Perduca; Paul D. P. Pharoah; Elizabeth A. Platz; John D. Potter; Gad Rennert; Elio Riboli; Maria-Jose Sánchez; Stephanie L. Schmit; Robert E. Schoen; Gianluca Severi; Sabina Sieri; Martha L. Slattery; Mingyang Song; Catherine M. Tangen; Stephen N.</p> |

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|--|---|
| <p>DOI
Type
Published in
Published by
ISSN
Subjects</p> <p>Links</p> | <p>Thibodeau; Ruth C. Travis; Antonia Trichopoulou; Cornelia M. Ulrich; Franzel J. B. van Duijnhoven; Bethany Van Guelpen; Pavel Vodicka; Emily White; Alicja Wolk; Michael O. Woods; Anna H. Wu; Ulrike Peters; Marc J. Gunter; Neil Murphy
doi:10.1038/s41467-020-14389-8</p> <p>Journal article
Nature Communications
Springer Science and Business Media LLC
2041-1723
General Biochemistry, Genetics and Molecular Biology; General Physics and Astronomy; General Chemistry
http://www.nature.com/articles/s41467-020-14389-8.pdf;
http://www.nature.com/articles/s41467-020-14389-8</p> |
| <p>23. doi:10.3390/cancers11081170</p> <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subjects</p> <p>Link</p> | <p>Noncoding RNAs in Extracellular Fluids as Cancer Biomarkers: The New Frontier of Liquid Biopsies</p> <p>Barbara Pardini; Alexandru Anton Sabo; Giovanni Birolo; George Adrian Calin
doi:10.3390/cancers11081170</p> <p>Journal article
Cancers
MDPI AG
2072-6694
Cancer Research; Oncology
https://www.mdpi.com/2072-6694/11/8/1170/pdf</p> |
| <p>24. doi:10.1016/j.mam.2019.07.007</p> <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subjects</p> <p>Links</p> | <p>The landscape of genomic copy number alterations in colorectal cancer and their consequences on gene expression levels and disease outcome</p> <p>Thomas Ried; Gerrit A. Meijer; David J. Harrison; Godfrey Grech; Sebastià Franch-Expósito; Romina Briffa; Beatriz Carvalho; Jordi Camps
doi:10.1016/j.mam.2019.07.007</p> <p>Journal article
Molecular Aspects of Medicine
Elsevier BV
0098-2997
Clinical Biochemistry; Molecular Medicine; Biochemistry; Molecular Biology; General Medicine
https://api.elsevier.com/content/article/PII:S0098299719300354?httpAccept=text/xml;
https://api.elsevier.com/content/article/PII:S0098299719300354?httpAccept=text/plain</p> |
| <p>25. doi:10.1016/j.mam.2019.05.001</p> <p>Title</p> <p>Authors</p> | <p>Microbiome and colorectal cancer: Roles in carcinogenesis and clinical potential</p> <p>Ester Saus; Susana Iraola-Guzmán; Jesse R. Willis; Anna Brunet-Vega; Toni Gabaldón</p> |

- DOI
Type
Published in
Published by
ISSN
Links
- [doi:10.1016/j.mam.2019.05.001](https://doi.org/10.1016/j.mam.2019.05.001)
Journal article
Molecular Aspects of Medicine
Elsevier BV
[0098-2997](https://doi.org/10.1016/j.mam.2019.05.001)
<https://api.elsevier.com/content/article/PII:S0098299719300329?httpAccept=text/xml>;
<https://api.elsevier.com/content/article/PII:S0098299719300329?httpAccept=text/plain>
26. [doi:10.1093/mutage/gez027](https://doi.org/10.1093/mutage/gez027)
Title
The missing heritability of familial colorectal cancer
Authors
[Stephanie A Schubert](#); Hans Morreau; Noel F C C de Miranda; Tom van Wezel
DOI
[doi:10.1093/mutage/gez027](https://doi.org/10.1093/mutage/gez027)
Type
Journal article
Published in
Mutagenesis
Published by
Oxford University Press (OUP)
ISSNs
[0267-8357](https://doi.org/10.1093/mutage/gez027); [1464-3804](https://doi.org/10.1093/mutage/gez027)
Subjects
Toxicology; Genetics(clinical); Genetics; Health, Toxicology and Mutagenesis
Link
<http://academic.oup.com/mutage/article-pdf/35/3/221/33484745/gez027.pdf>
27. [doi:10.3390/ijms21093260](https://doi.org/10.3390/ijms21093260)
Title
Colorectal Adenomas—Genetics and Searching for New Molecular Screening Biomarkers
Authors
Anna Siskova; [Klara Cervena](#); Jan Kral; Tomas Hucl; Pavel Vodicka; [Veronika Vymetalkova](#)
DOI
[doi:10.3390/ijms21093260](https://doi.org/10.3390/ijms21093260)
Type
Journal article
Published in
International Journal of Molecular Sciences
Published by
MDPI AG
ISSN
[1422-0067](https://doi.org/10.3390/ijms21093260)
Subjects
Physical and Theoretical Chemistry; Inorganic Chemistry; Organic Chemistry; Spectroscopy; Molecular Biology; Catalysis; General Medicine; Computer Science Applications
Link
<https://www.mdpi.com/1422-0067/21/9/3260/pdf>
28. [doi:10.1038/s41419-019-2122-z](https://doi.org/10.1038/s41419-019-2122-z)
Title
DAPK1 loss triggers tumor invasion in colorectal tumor cells
Authors
[Sara Steinmann](#); Philipp Kunze; Chuanpit Hampel; Markus Eckstein; Jesper Bertram Bramsen; Julienne K. Muenzner; Birgitta Carlé; Benardina Ndreshkjana; Stephan Kemenes; Pierluigi Gasparini; Oliver Friedrich; [Claus Andersen](#); Carol Geppert; Shengbao Wang; Ilker Eyupoglu; Tobias Bäuerle; Arndt Hartmann; Regine Schneider-Stock
DOI
[doi:10.1038/s41419-019-2122-z](https://doi.org/10.1038/s41419-019-2122-z)
Type
Journal article
Published in
Cell Death & Disease
Published by
Springer Science and Business Media LLC
ISSN
[2041-4889](https://doi.org/10.1038/s41419-019-2122-z)
Subjects
Immunology; Cell Biology; Cancer Research;

- Links
<http://www.nature.com/articles/s41419-019-2122-z.pdf>;
<http://www.nature.com/articles/s41419-019-2122-z>
29. [doi:10.1002/ijc.32683](https://doi.org/10.1002/ijc.32683)
 Title Using linkage studies combined with whole-exome sequencing to identify novel candidate genes for familial colorectal cancer
 Authors Claudio Toma; Marcos Díaz-Gay; Sebastià Franch-Expósito; Coral Arnau-Collell; Bronwyn Overs; Jenifer Muñoz; Laia Bonjoch; Yasmin Soares de Lima; Teresa Ocaña; Miriam Cuatrecasas; Antoni Castells; Luis Bujanda; Francesc Balaguer; [Joaquín Cubiella](#); Trinidad Caldés; Janice M. Fullerton; [Sergi Castellví-Bel](#)
 DOI [doi:10.1002/ijc.32683](https://doi.org/10.1002/ijc.32683)
 Type Journal article
 Published in International Journal of Cancer
 Published by Wiley
 ISSN [0020-7136](#); [1097-0215](#)
 Subjects Cancer Research; Oncology
 Links <https://api.wiley.com/onlinelibrary/tdm/v1/articles/10.1002%2Fijc.32683>;
<https://onlinelibrary.wiley.com/doi/pdf/10.1002/ijc.32683>;
<https://onlinelibrary.wiley.com/doi/full-xml/10.1002/ijc.32683>
30. [doi:10.1093/ibd/izz171](https://doi.org/10.1093/ibd/izz171)
 Title IBD-Associated Dysplastic Lesions Show More Chromosomal Instability Than Sporadic Adenomas
 Authors Linda K Wanders; Martijn Cordes; Quirinus Voorham; Daoud Sie; Sara D de Vries; Geert R A M d'Haens; Nanne K H de Boer; [Bauke Ylstra](#); Nicole C T van Grieken; Gerrit A Meijer; Evelien Dekker; [Beatriz Carvalho](#)
 DOI [doi:10.1093/ibd/izz171](https://doi.org/10.1093/ibd/izz171)
 Type Journal article
 Published in Inflammatory Bowel Diseases
 Published by Oxford University Press (OUP)
 ISSN [1078-0998](#); [1536-4844](#)
 Subjects Immunology and Allergy; Gastroenterology
 Link <http://academic.oup.com/ibdjournal/article-pdf/26/2/167/31717876/izz171.pdf>
31. [doi:10.1093/mutage/gez050](https://doi.org/10.1093/mutage/gez050)
 Title Expression quantitative trait loci in ABC transporters are associated with survival in 5-FU treated colorectal cancer patients
 Authors [Veronika Vymetalkova](#); Fabio Rosa; Simona Susova; Petra Bendova; Miroslav Levy; Tomas Buchler; Jan Kral; Linda Bartu; Ludmila Vodickova; David J Hughes; Pavel Soucek; Alessio Naccarati; Rajiv Kumar; Pavel Vodicka; Barbara Pardini

- | | |
|--------------|---|
| DOI | doi:10.1093/mutage/gez050 |
| Type | Journal article |
| Published in | Mutagenesis |
| Published by | Oxford University Press (OUP) |
| ISSNs | 0267-8357 ; 1464-3804 |
| Subjects | Toxicology; Genetics(clinical); Genetics; Health, Toxicology and Mutagenesis |
| Link | http://academic.oup.com/mutage/article-pdf/35/3/273/33484889/gez050.pdf |
-
32. [doi:10.1016/j.mam.2019.04.002](https://doi.org/10.1016/j.mam.2019.04.002)
- | | |
|--------------|--|
| Title | DNA methylation and chromatin modifiers in colorectal cancer |
| Authors | Veronika Vymetalkova; Pavel Vodicka; Sona Vodenkova; Sergio Alonso; Regine Schneider-Stock |
| DOI | doi:10.1016/j.mam.2019.04.002 |
| Type | Journal article |
| Published in | Molecular Aspects of Medicine |
| Published by | Elsevier BV |
| ISSN | 0098-2997 |
| Links | https://api.elsevier.com/content/article/PII:S0098299719300081?httpAccept=text/xml ;
https://api.elsevier.com/content/article/PII:S0098299719300081?httpAccept=text/plain |
-
33. [doi:10.14309/ctg.000000000000100](https://doi.org/10.14309/ctg.000000000000100)
- | | |
|--------------|--|
| Title | Identification of a Novel Candidate Gene for Serrated Polyposis Syndrome Germline Predisposition by Performing Linkage Analysis Combined With Whole-Exome Sequencing |
| Authors | Claudio Toma; Marcos Díaz-Gay; Yasmin Soares de Lima; Coral Arnau-Collell; Sebastià Franch-Expósito; Jenifer Muñoz; Bronwyn Overs; Laia Bonjoch; Sabela Carballal; Teresa Ocaña; Miriam Cuatrecasas; Aránzazu Díaz de Bustamante; Antoni Castells; Luis Bujanda; Joaquín Cubiella; Francesc Balaguer; Daniel Rodríguez-Alcalde; Janice M. Fullerton; Sergi Castellví-Bel |
| DOI | doi:10.14309/ctg.000000000000100 |
| Type | Journal article |
| Published in | Clinical and Translational Gastroenterology |
| Published by | Ovid Technologies (Wolters Kluwer Health) |
| ISSN | 2155-384X |
| Subject | Gastroenterology |
| Link | http://journals.lww.com/ctg/Fulltext/10.14309/ctg.000000000000100 |
-
34. [doi:10.1093/carcin/bgaa072](https://doi.org/10.1093/carcin/bgaa072)
- | | |
|---------|--|
| Title | Evaluation of an aldo-keto reductase gene signature with prognostic significance in colon cancer via activation of epithelial to mesenchymal transition and the p70S6K pathway |
| Authors | Seçil Demirkol Canlı; Esin Gülce Seza; Ilir Sheraj; Ismail Gömçeli; Nesrin Turhan; Steven Carberry; Jochen H M Prehn; Ali Osmay Güre; Sreeparna Banerjee |
| DOI | doi:10.1093/carcin/bgaa072 |

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|---|---|
| <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSNs</p> <p>Subjects</p> <p>Link</p> | <p>Journal article</p> <p>Carcinogenesis</p> <p>Oxford University Press (OUP)</p> <p>0143-3334; 1460-2180</p> <p>Cancer Research; General Medicine</p> <p>http://academic.oup.com/carcin/advance-article-pdf/doi/10.1093/carcin/bgaa072/33556883/bgaa072.pdf</p> |
| <p>35. doi:10.1016/j.mam.2019.06.005</p> | |
| <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subjects</p> <p>Links</p> | <p>Lifestyle and dietary environmental factors in colorectal cancer susceptibility</p> <p>Neil Murphy; Victor Moreno; David J. Hughes; Ludmila Vodicka; Pavel Vodicka; Elom K. Aglago; Marc J. Gunter; Mazda Jenab</p> <p>doi:10.1016/j.mam.2019.06.005</p> <p>Journal article</p> <p>Molecular Aspects of Medicine</p> <p>Elsevier BV</p> <p>0098-2997</p> <p>Clinical Biochemistry; Molecular Medicine; Biochemistry; Molecular Biology; General Medicine</p> <p>https://api.elsevier.com/content/article/PII:S0098299719300330?httpAccept=text/xml;</p> <p>https://api.elsevier.com/content/article/PII:S0098299719300330?httpAccept=text/plain</p> |
| <p>36. doi:10.3390/ijms20010097</p> | |
| <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subjects</p> <p>Link</p> | <p>Functional Polymorphisms in DNA Repair Genes Are Associated with Sporadic Colorectal Cancer Susceptibility and Clinical Outcome</p> <p>Katerina Jiraskova; David Hughes; Stefanie Brezina; Tanja Gumpenberger; Veronika Veskrnova; Tomas Buchler; Michaela Schneiderova; Miroslav Levy; Vaclav Liska; Sona Vodenkova; Cornelia Di Gaetano; Alessio Naccarati; Barbara Pardini; Veronika Vymetalkova; Andrea Gsur; Pavel Vodicka</p> <p>doi:10.3390/ijms20010097</p> <p>Journal article</p> <p>International Journal of Molecular Sciences</p> <p>MDPI AG</p> <p>1422-0067</p> <p>Physical and Theoretical Chemistry; Inorganic Chemistry; Organic Chemistry; Spectroscopy; Molecular Biology; Catalysis; General Medicine; Computer Science Applications</p> <p>http://www.mdpi.com/1422-0067/20/1/97/pdf</p> |
| <p>37. doi:10.1007/s10096-019-03649-1</p> | |
| <p>Title</p> <p>Authors</p> | <p>Fusobacterium nucleatum tumor DNA levels are associated with survival in colorectal cancer patients</p> <p>Andrew T. Kunzmann; Marcela Alcântara Proença; Haydee WT Jordao; Katerina Jiraskova; Michaela Schneiderova; Miroslav Levy; Václav Liska; Tomas Buchler; Ludmila Vodickova;</p> |

- | | |
|--|--|
| <p>DOI
Type
Published in

Published by
ISSNs
Subjects

Links</p> | <p>Veronika Vymetalkova; Ana Elizabete Silva;
Pavel Vodicka; David J. Hughes
doi:10.1007/s10096-019-03649-1
Journal article
European Journal of Clinical Microbiology &
Infectious Diseases
Springer Science and Business Media LLC
0934-9723; 1435-4373
Microbiology (medical); Infectious Diseases;
General Medicine
http://link.springer.com/content/pdf/10.1007/s10096-019-03649-1.pdf;
http://link.springer.com/article/10.1007/s10096-019-03649-1/fulltext.html</p> |
| <p>38. doi:10.1038/s41436-020-0922-2
Title
Authors

DOI
Type
Published in
Published by
ISSNs
Subject
Links</p> | <p>Role of POLE and POLD1 in familial cancer
Pilar Mur; Sandra García-Mulero; Jesús del Valle;
Lorena Magraner-Pardo; August Vidal; Marta
Pineda; Giacomo Cinnirella; Edgar Martín-
Ramos; Tirso Pons; Adriana López-Doriga; Sami
Belhadj; Lidia Feliubadaló; Pau M. Munoz-Torres;
Matilde Navarro; Elia Grau; Esther Darder;
Gemma Llort; Judit Sanz; Teresa Ramón y Cajal;
Judith Balmana; Joan Brunet; Victor Moreno;
Josep M. Piulats; Xavier Matías-Guiu; Rebeca
Sanz-Pamplona; Rosa Aligué; Gabriel Capellá;
Conxi Lázaro; Laura Valle
doi:10.1038/s41436-020-0922-2
Journal article
Genetics in Medicine
Springer Science and Business Media LLC
1098-3600; 1530-0366
Genetics(clinical)
http://www.nature.com/articles/s41436-020-0922-2.pdf;
http://www.nature.com/articles/s41436-020-0922-2</p> |
| <p>39. doi:10.1038/s10038-019-0701-6
Title

Authors

DOI
Type
Published in
Published by
ISSNs
Subjects
Links</p> | <p>Reply to: "Development of an MSI-positive colon
tumor with aberrant DNA methylation in a PPAP
patient"
Pilar Mur; Claire Palles; Ian Tomlinson; Laura Valle
doi:10.1038/s10038-019-0701-6
Journal article
Journal of Human Genetics
Springer Science and Business Media LLC
1434-5161; 1435-232X
Genetics(clinical); Genetics
http://www.nature.com/articles/s10038-019-0701-6.pdf;
http://www.nature.com/articles/s10038-019-0701-6</p> |
| <p>40. doi:10.1002/humu.23853
Title</p> | <p>Contribution to colonic polyposis of recently</p> |

- proposed predisposing genes and assessment of the prevalence of NTHL1 □ and MSH3 □ associated polyposes
40. [doi:10.1002/humu.23853](#)
 Authors [Mariona Terradas](#); [Pau M. Munoz-Torres](#); [Sami Belhadj](#); Gemma Aiza; Matilde Navarro; [Joan Brunet](#); [Gabriel Capellá](#); [Laura Valle](#)
 DOI [doi:10.1002/humu.23853](#)
 Type Journal article
 Published in Human Mutation
 Published by Wiley
 ISSNs [1059-7794](#); [1098-1004](#)
 Subjects Genetics(clinical); Genetics
 Links <https://api.wiley.com/onlinelibrary/tdm/v1/articles/10.1002%2Fhumu.23853>; <https://onlinelibrary.wiley.com/doi/pdf/10.1002/humu.23853>; <https://onlinelibrary.wiley.com/doi/full-xml/10.1002/humu.23853>
41. [doi:10.1038/s41598-019-45281-1](#)
 Title NTHL1 biallelic mutations seldom cause colorectal cancer, serrated polyposis or a multi-tumor phenotype, in absence of colorectal adenomas
 Authors [Sami Belhadj](#); Isabel Quintana; Pilar Mur; Pau M. Munoz-Torres; [M. Henar Alonso](#); Matilde Navarro; [Mariona Terradas](#); Virginia Piñol; [Joan Brunet](#); [Victor Moreno](#); Conxi Lázaro; [Gabriel Capellá](#); [Laura Valle](#)
 DOI [doi:10.1038/s41598-019-45281-1](#)
 Type Journal article
 Published in Scientific Reports
 Published by Springer Science and Business Media LLC
 ISSN [2045-2322](#)
 Subject Multidisciplinary
 Links <http://www.nature.com/articles/s41598-019-45281-1.pdf>; <http://www.nature.com/articles/s41598-019-45281-1>
42. [doi:10.1016/j.canlet.2019.01.019](#)
 Title Germline variation in O6-methylguanine-DNA methyltransferase (MGMT) as cause of hereditary colorectal cancer
 Authors Sami Belhadj; Cátia Moutinho; Pilar Mur; Fernando Setien; Pere Llinàs-Arias; Montserrat Pérez-Salvia; [Tirso Pons](#); Marta Pineda; Joan Brunet; Matilde Navarro; [Gabriel Capellá](#); Manel Esteller; [Laura Valle](#)
 DOI [doi:10.1016/j.canlet.2019.01.019](#)
 Type Journal article
 Published in Cancer Letters
 Published by Elsevier BV
 ISSN [0304-3835](#)
 Subjects Cancer Research; Oncology
 Links <https://api.elsevier.com/content/article/PII:S030438351930031X?httpAccept=text/xml>; <https://api.elsevier.com/content/article/PII:S030438351930031X?httpAccept=text/plain>

43. [doi:10.1016/j.ajhg.2020.07.006](https://doi.org/10.1016/j.ajhg.2020.07.006)

Title

Genome-wide Modeling of Polygenic Risk Score in Colorectal Cancer Risk

Authors

Minta Thomas; Lori C. Sakoda; Michael Hoffmeister; Elisabeth A. Rosenthal; Jeffrey K. Lee; Franzel J.B. van Duijnhoven; Elizabeth A. Platz; Anna H. Wu; Christopher H. Dampier; Albert de la Chapelle; Alicja Wolk; Amit D. Joshi; Andrea Burnett-Hartman; Andrea Gsur; Annika Lindblom; Antoni Castells; Aung Ko Win; Bahram Namjou; Bethany Van Guelpen; Catherine M. Tangen; Qianchuan He; Christopher I. Li; Clemens Schafmayer; Corinne E. Joshu; Cornelia M. Ulrich; D. Timothy Bishop; Daniel D. Buchanan; Daniel Schaid; David A. Drew; David C. Muller; David Duggan; David R. Crosslin; Demetrius Albanes; Edward L. Giovannucci; Eric Larson; Flora Qu; Frank Mentch; Graham G. Giles; Hakon Hakonarson; Heather Hampel; Ian B. Stanaway; Jane C. Figueiredo; Jeroen R. Huyghe; Jessica Minnier; Jenny Chang-Claude; Jochen Hampe; John B. Harley; Kala Visvanathan; Keith R. Curtis; Kenneth Offit; Li Li; Loic Le Marchand; Ludmila Vodickova; Marc J. Gunter; Mark A. Jenkins; Martha L. Slattery; Mathieu Lemire; Michael O. Woods; Mingyang Song; Neil Murphy; Noralane M. Lindor; Ozan Dikilitas; Paul D.P. Pharoah; Peter T. Campbell; Polly A. Newcomb; Roger L. Milne; Robert J. MacInnis; Sergi Castellví-Bel; Shuji Ogino; Sonja I. Berndt; Stéphane Bézieau; Stephen N. Thibodeau; Steven J. Gallinger; Syed H. Zaidi; Tabitha A. Harrison; Temitope O. Keku; Thomas J. Hudson; Veronika Vymetalkova; Victor Moreno; Vicente Martín; Volker Arndt; Wei-Qi Wei; Wendy Chung; Yu-Ru Su; Richard B. Hayes; Emily White; Pavel Vodicka; Graham Casey; Stephen B. Gruber; Robert E. Schoen; Andrew T. Chan; John D. Potter; Hermann Brenner; Gail P. Jarvik; Douglas A. Corley; Ulrike Peters; Li Hsu

DOI

[doi:10.1016/j.ajhg.2020.07.006](https://doi.org/10.1016/j.ajhg.2020.07.006)

Type

Journal article

Published in

The American Journal of Human Genetics

Published by

Elsevier BV

ISSN

[0002-9297](https://doi.org/10.1016/j.ajhg.2020.07.006)

Subjects

Genetics(clinical); Genetics

Links

<https://api.elsevier.com/content/article/PII:S0002929720302366?httpAccept=text/xml>;
<https://api.elsevier.com/content/article/PII:S0002929720302366?httpAccept=text/plain>

44. [doi:10.1053/j.gastro.2019.12.020](https://doi.org/10.1053/j.gastro.2019.12.020)

Title

Circulating Levels of Insulin-like Growth Factor 1 and Insulin-like Growth Factor Binding Protein 3 Associate With Risk of Colorectal Cancer Based on Serologic and Mendelian Randomization Analyses

Authors

Neil Murphy; Robert Carreras-Torres; Mingyang Song; Andrew T. Chan; Richard M. Martin; Nikos Papadimitriou; Niki Dimou; Konstantinos K. Tsilidis; Barbara Banbury; Kathryn E. Bradbury; Jelena Besevic; Sabina Rinaldi; Elio Riboli; Amanda J. Cross; Ruth C. Travis; Claudia Agnoli; Demetrius Albanes; Sonja I. Berndt; Stéphane Bézieau; D. Timothy Bishop; Hermann Brenner; Daniel D. Buchanan; N. Charlotte Onland-Moret; Andrea Burnett-Hartman; Peter T. Campbell; Graham Casey; Sergi Castellví-Bel; Jenny Chang-Claude; María-Dolores Chirlaque; Albert de la Chapelle; Dallas English; Jane C. Figueiredo; Steven J. Gallinger; Graham G. Giles; Stephen B. Gruber; Andrea Gsur; Jochen Hampe; Heather Hampel; Tabitha A. Harrison; Michael Hoffmeister; Li Hsu; Wen-Yi Huang; Jeroen R. Huyghe; Mark A. Jenkins; Temitope O. Keku; Tilman Kühn; Sun-Seog Kweon; Loic Le Marchand; Christopher I. Li; Li Li; Annika Lindblom; Vicente Martín; Roger L. Milne; Victor Moreno; Polly A. Newcomb; Kenneth Offit; Shuji Ogino; Jennifer Ose; Vittorio Perduca; Amanda I. Phipps; Elizabeth A. Platz; John D. Potter; Conghui Qu; Gad Rennert; Lori C. Sakoda; Clemens Schafmayer; Robert E. Schoen; Martha L. Slattery; Catherine M. Tangen; Cornelia M. Ulrich; Franzel J.B. van Duijnhoven; Bethany Van Guelpen; Kala Visvanathan; Pavel Vodicka; Ludmila Vodickova; Veronika Vymetalkova; Hansong Wang; Emily White; Alicja Wolk; Michael O. Woods; Anna H. Wu; Wei Zheng; Ulrike Peters; Marc J. Gunter

[doi:10.1053/j.gastro.2019.12.020](https://doi.org/10.1053/j.gastro.2019.12.020)

Journal article

Gastroenterology

Elsevier BV

[0016-5085](https://www.elsevier.com/issn/0016-5085)

Gastroenterology

<https://api.elsevier.com/content/article/PII:S0016508519419513?httpAccept=text/xml>;

<https://api.elsevier.com/content/article/PII:S0016508519419513?httpAccept=text/plain>

DOI

Type

Published in

Published by

ISSN

Subject

Links

45. [doi:10.3390/cancers12061507](https://doi.org/10.3390/cancers12061507)

Title

Small Non-Coding RNA Profiling in Plasma Extracellular Vesicles of Bladder Cancer Patients by Next-Generation Sequencing: Expression Levels of miR-126-3p and piR-5936 Increase with Higher Histologic Grades

Authors

Alexandru A. Sabo; [Giovanni Birolo](https://www.ncbi.nlm.nih.gov/pubmed/31211111); Alessio Naccarati; [Mihnea P. Dragomir](https://www.ncbi.nlm.nih.gov/pubmed/31211111); [Serena Aneli](https://www.ncbi.nlm.nih.gov/pubmed/31211111); Alessandra Allione; Marco Oderda; Marco Allasia; Paolo Gontero; [Carlotta Sacerdote](https://www.ncbi.nlm.nih.gov/pubmed/31211111); Paolo Vineis; [Giuseppe Matullo](https://www.ncbi.nlm.nih.gov/pubmed/31211111); [Barbara Pardini](https://www.ncbi.nlm.nih.gov/pubmed/31211111)

[doi:10.3390/cancers12061507](https://doi.org/10.3390/cancers12061507)

Journal article

Cancers

DOI

Type

Published in

- Published by
ISSN
Subjects
Link
- MDPI AG
[2072-6694](https://www.mdpi.com/2072-6694)
Cancer Research; Oncology
<https://www.mdpi.com/2072-6694/12/6/1507/pdf>
46. [doi:10.1172/jci.insight.140698](https://doi.org/10.1172/jci.insight.140698)
Title
Authors
DOI
Type
Published in
Published by
ISSN
Link
- Germline biallelic MCM8 variants are associated with early-onset Lynch-like syndrome
[Mariano Golubicki](#); [Laia Bonjoch](#); José G. Acuña-Ochoa; [Marcos Díaz-Gay](#); Jenifer Muñoz; [Miriam Cuatrecasas](#); Teresa Ocaña; Soledad Iseas; Guillermo Mendez; [Daniel Cisterna](#); [Stephanie A. Schubert](#); [Maartje Nielsen](#); [Tom van Wezel](#); [Yael Goldberg](#); [Eli Pikarsky](#); [Juan Robbio](#); Enrique Roca; [Antoni Castells](#); Francesc Balaguer; Marina Antelo; [Sergi Castellví-Bel](#)
[doi:10.1172/jci.insight.140698](https://doi.org/10.1172/jci.insight.140698)
Journal article
JCI Insight
American Society for Clinical Investigation
[2379-3708](https://insight.jci.org/articles/view/140698/files/pdf)
<http://insight.jci.org/articles/view/140698/files/pdf>
47. [doi:10.1038/s41598-021-99046-w](https://doi.org/10.1038/s41598-021-99046-w)
Title
Authors
DOI
Type
Published in
Published by
ISSN
Subject
Links
- Using fecal immunochemical tubes for the analysis of the gut microbiome has the potential to improve colorectal cancer screening
Kertu Liis Krigul; Oliver Aasmets; Kreete Lüll; Tõnis Org; Elin Org
[doi:10.1038/s41598-021-99046-w](https://doi.org/10.1038/s41598-021-99046-w)
Journal article
Scientific Reports
Springer Science and Business Media LLC
[2045-2322](https://www.nature.com/articles/s41598-021-99046-w.pdf)
Multidisciplinary
<https://www.nature.com/articles/s41598-021-99046-w.pdf>;
<https://www.nature.com/articles/s41598-021-99046-w>
48. [doi:10.3390/metabo11020119](https://doi.org/10.3390/metabo11020119)
Title
Authors
DOI
Type
Published in
Published by
ISSN
Subjects
Link
- Untargeted Metabolomics Reveals Major Differences in the Plasma Metabolome between Colorectal Cancer and Colorectal Adenomas
[Tanja Gumpenberger](#); [Stefanie Brezina](#); Pekka Keski-Rahkonen; [Andreas Baierl](#); Nivonirina Robinot; Gernot Leeb; Nina Habermann; [Dieuwertje Kok](#); [Augustin Scalbert](#); Per-Magne Ueland; [Cornelia Ulrich](#); [Andrea Gsur](#)
[doi:10.3390/metabo11020119](https://doi.org/10.3390/metabo11020119)
Journal article
Metabolites
MDPI AG
[2218-1989](https://www.mdpi.com/2218-1989)
Molecular Biology; Biochemistry; Endocrinology, Diabetes and Metabolism
<https://www.mdpi.com/2218-1989/11/2/119/pdf>

49. [doi:10.2478/raon-2021-0039](https://doi.org/10.2478/raon-2021-0039)

Title The role of haematological parameters in predicting the response to radical chemoradiotherapy in patients with anal squamous cell cancer
 Authors Suzana Stojanovic-Rundic; Mladen Marinkovic; Milena Cavic; Vesna Plesinac Karapandzic; Dusica Gavrilovic; Radmila Jankovic; Richarda M. de Voer; Sergi Castellvi-Bel; Zoran Krivokapic
 DOI [doi:10.2478/raon-2021-0039](https://doi.org/10.2478/raon-2021-0039)
 Type Journal article
 Published in Radiology and Oncology
 Published by Walter de Gruyter GmbH
 ISSN [1581-3207](https://www.issn.org/issn/1581-3207)
 Subjects Radiology, Nuclear Medicine and imaging; Oncology
 Link <https://www.sciendo.com/pdf/10.2478/raon-2021-0039>

50. [doi:10.3389/fonc.2021.626349](https://doi.org/10.3389/fonc.2021.626349)

Title The Role of Gut Barrier Dysfunction and Microbiome Dysbiosis in Colorectal Cancer Development
 Authors Flavia Genua; Vedhika Raghunathan; Mazda Jenab; William M. Gallagher; David J. Hughes
 DOI [doi:10.3389/fonc.2021.626349](https://doi.org/10.3389/fonc.2021.626349)
 Type Journal article
 Published in Frontiers in Oncology
 Published by Frontiers Media SA
 ISSN [2234-943X](https://www.issn.org/issn/2234-943X)
 Subjects Cancer Research; Oncology
 Link <https://www.frontiersin.org/articles/10.3389/fonc.2021.626349/full>

51. [doi:10.3390/cells10030710](https://doi.org/10.3390/cells10030710)

Title The Inherited and Familial Component of Early-Onset Colorectal Cancer
 Authors [Maria Daca Alvarez](#); [Isabel Quintana](#); [Mariona Terradas](#); [Pilar Mur](#); [Francesc Balaguer](#); [Laura Valle](#)
 DOI [doi:10.3390/cells10030710](https://doi.org/10.3390/cells10030710)
 Type Journal article
 Published in Cells
 Published by MDPI AG
 ISSN [2073-4409](https://www.issn.org/issn/2073-4409)
 Subject General Medicine
 Link <https://www.mdpi.com/2073-4409/10/3/710/pdf>

52. [doi:10.3390/biomedicines8110488](https://doi.org/10.3390/biomedicines8110488)

Title TCox: Correlation-Based Regularization Applied to Colorectal Cancer Survival Data
 Authors [Carolina Peixoto](#); Marta B. Lopes; [Marta Martins](#); Luís Costa; [Susana Vinga](#)
 DOI [doi:10.3390/biomedicines8110488](https://doi.org/10.3390/biomedicines8110488)
 Type Journal article
 Published in Biomedicines
 Published by MDPI AG
 ISSN [2227-9059](https://www.issn.org/issn/2227-9059)

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|---|---|
| <p>Subjects</p> <p>Link</p> | <p>General Biochemistry, Genetics and Molecular Biology; Medicine (miscellaneous)</p> <p>https://www.mdpi.com/2227-9059/8/11/488/pdf</p> |
| <p>53. doi:10.1136/gutjnl-2021-325168</p> <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSNs</p> <p>Subject</p> <p>Link</p> | <p>Stool microRNA profiles reflect different dietary and gut microbiome patterns in healthy individuals</p> <p>Sonia Tarallo; Giulio Ferrero; Francesca De Filippis; Antonio Francavilla; Edoardo Pasolli; Valentina Panero; Francesca Cordero; Nicola Segata; Sara Grioni; Ruggero Gaetano Pensa; Barbara Pardini; Danilo Ercolini; Alessio Naccarati</p> <p>doi:10.1136/gutjnl-2021-325168</p> <p>Journal article</p> <p>Gut</p> <p>BMJ</p> <p>0017-5749; 1468-3288</p> <p>Gastroenterology</p> <p>https://syndication.highwire.org/content/doi/10.1136/gutjnl-2021-325168</p> |
| <p>54. doi:10.3390/nu13114164</p> <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subjects</p> <p>Link</p> | <p>Salicylic Acid and Risk of Colorectal Cancer: A Two-Sample Mendelian Randomization Study</p> <p>Aayah Nounu; Rebecca Richmond; Isobel Stewart; Praveen Surendran; Nicholas Wareham; Adam Butterworth; Stephanie Weinstein; Demetrius Albanes; John Baron; John Hopper; Jane Figueiredo; Polly Newcomb; Noralane Lindor; Graham Casey; Elizabeth Platz; Loïc Marchand; Cornelia Ulrich; Christopher Li; Fränzel van Duijnhoven; Andrea Gsur; Peter Campbell; V́ctor Moreno; Pavel Vodicka; Ludmila Vodickova; Efrat Amitay; Elizabeth Alwers; Jenny Chang-Claude; Lori Sakoda; Martha Slattery; Robert Schoen; Marc Gunter; Sergi Castellví-Bel; Hyeong-Rok Kim; Sun-Seog Kweon; Andrew Chan; Li Li; Wei Zheng; D. Bishop; Daniel Buchanan; Graham Giles; Stephen Gruber; Gad Rennert; Zsofia Stadler; Tabitha Harrison; Yi Lin; Temitope Keku; Michael Woods; Clemens Schafmayer; Bethany Van Guelpen; Steven Gallinger; Heather Hampel; Sonja Berndt; Paul Pharoah; Annika Lindblom; Alicja Wolk; Anna Wu; Emily White; Ulrike Peters; David Drew; Dominique Scherer; Justo Bermejo; Hermann Brenner; Michael Hoffmeister; Ann Williams; Caroline Relton</p> <p>doi:10.3390/nu13114164</p> <p>Journal article</p> <p>Nutrients</p> <p>MDPI AG</p> <p>2072-6643</p> <p>Food Science; Nutrition and Dietetics</p> <p>https://www.mdpi.com/2072-6643/13/11/4164/pdf</p> |

55. [doi:10.3390/medicina57101108](https://doi.org/10.3390/medicina57101108)

Title

Prognostic Factors for Post-Recurrence Survival in Stage II and III Colorectal Carcinoma Patients

Authors

[Neda Nikolic](#); Davorin Radosavljevic; Dusica Gavrilovic; Vladimir Nikolic; [Nemanja Stanic](#); Jelena Spasic; Tamara Cacev; [Sergi Castellvi-Bel](#); [Milena Cavic](#); Goran Jankovic
[doi:10.3390/medicina57101108](https://doi.org/10.3390/medicina57101108)

DOI

Journal article

Type

Medicina

Published in

MDPI AG

Published by

[1648-9144](#)

ISSN

Subject

General Medicine

Link

<https://www.mdpi.com/1648-9144/57/10/1108/pdf>

56. [doi:10.3390/biomedicines9111521](https://doi.org/10.3390/biomedicines9111521)

Title

Prediagnostic Blood Selenium Status and Mortality among Patients with Colorectal Cancer in Western European Populations

Authors

Jacqueline Roshelli Baker; Sushma Umesh; [Mazda Jenab](#); [Lutz Schomburg](#); [Anne Tjønneland](#); [Anja Olsen](#); Marie-Christine Boutron-Ruault; Joseph A. Rothwell; Gianluca Severi; Verena Katzke; [Theron Johnson](#); [Matthias B. Schulze](#); [Giovanna Masala](#); Claudia Agnoli; [Vittorio Simeon](#); Rosario Tumino; H. Bas Bueno-de-Mesquita; Inger Torhild Gram; [Guri Skeie](#); Catalina Bonet; [Miguel Rodriguez-Barranco](#); [José María Houerta](#); Björn Gylling; Bethany Van Guelpen; Aurora Perez-Cornago; Elom Aglago; [Heinz Freisling](#); Elisabeth Weiderpass; [Amanda J. Cross](#); [Alicia K. Heath](#); [David J. Hughes](#); Veronika Fedirko
[doi:10.3390/biomedicines9111521](https://doi.org/10.3390/biomedicines9111521)

DOI

Journal article

Type

Biomedicines

Published in

MDPI AG

Published by

[2227-9059](#)

ISSN

Subjects

General Biochemistry, Genetics and Molecular Biology; Medicine (miscellaneous)

Link

<https://www.mdpi.com/2227-9059/9/11/1521/pdf>

57. [doi:10.3390/cancers13061258](https://doi.org/10.3390/cancers13061258)

Title

Polymorphisms within Autophagy-Related Genes Influence the Risk of Developing Colorectal Cancer: A Meta-Analysis of Four Large Cohorts

Authors

[Juan Sainz](#); Francisco José García-Verdejo; [Manuel Martínez-Bueno](#); [Abhishek Kumar](#); José Manuel Sánchez-Maldonado; [Anna Díez-Villanueva](#); Ludmila Vodičková; [Veronika Vymetálková](#); [Vicente Martín Sánchez](#); Miguel Inacio Da Silva Filho; Belém Sampaio-Marques; Stefanie Brezina; Katja Butterbach; Rob ter Horst; Michael Hoffmeister; [Paula Ludovico](#); Manuel Jurado; [Yang Li](#); Pedro Sánchez-Rovira; Mihai G. Netea; [Andrea Gsur](#); Pavel Vodička; Víctor Moreno; Kari Hemminki; [Hermann Brenner](#); Jenny Chang-Claude; [Asta Försti](#)
[doi:10.3390/cancers13061258](https://doi.org/10.3390/cancers13061258)

DOI

- | | |
|--------------|---|
| Type | Journal article |
| Published in | Cancers |
| Published by | MDPI AG |
| ISSN | 2072-6694 |
| Subjects | Cancer Research; Oncology |
| Link | https://www.mdpi.com/2072-6694/13/6/1258/pdf |
-
58. [doi:10.3390/cancers13153857](https://doi.org/10.3390/cancers13153857)
- | | |
|--------------|---|
| Title | Non-Lynch Familial and Early-Onset Colorectal Cancer Explained by Accumulation of Low-Risk Genetic Variants |
| Authors | Pilar Mur ; Nuria Bonifaci; Anna Díez-Villanueva; Elisabet Munté; Maria Henar Alonso ; Mireia Obón-Santacana; Gemma Aiza; Matilde Navarro; Virginia Piñol ; Joan Brunet ; Ian Tomlinson; Gabriel Capellá; Victor Moreno ; Laura Valle |
| DOI | doi:10.3390/cancers13153857 |
| Type | Journal article |
| Published in | Cancers |
| Published by | MDPI AG |
| ISSN | 2072-6694 |
| Subjects | Cancer Research; Oncology |
| Link | https://www.mdpi.com/2072-6694/13/15/3857/pdf |
-
59. [doi:10.1093/mutage/geab024](https://doi.org/10.1093/mutage/geab024)
- | | |
|--------------|--|
| Title | Mutational landscape of plasma cell-free DNA identifies molecular features associated with therapeutic response in patients with colon cancer. A pilot study |
| Authors | Klara Cervena ; Barbara Pardini; Marketa Urbanova; Sona Vodenkova; Pazourkova Eva; Veronika Veskrnova; Miroslav Levy; Tomas Buchler; Martin Mocrejs; Alessio Naccarati ; Pavel Vodicka; Veronika Vymetalkova |
| DOI | doi:10.1093/mutage/geab024 |
| Type | Journal article |
| Published in | Mutagenesis |
| Published by | Oxford University Press (OUP) |
| ISSNs | 0267-8357 ; 1464-3804 |
| Subjects | Health, Toxicology and Mutagenesis; Genetics (clinical); Toxicology; Genetics |
| Links | http://academic.oup.com/mutage/advance-article-pdf/doi/10.1093/mutage/geab024/38853385/geab024.pdf ;
http://academic.oup.com/mutage/article-pdf/36/5/358/40512881/geab024.pdf |
-
60. [doi:10.1053/j.gastro.2020.08.042](https://doi.org/10.1053/j.gastro.2020.08.042)
- | | |
|---------|---|
| Title | Monoallelic NTHL1 Loss-of-Function Variants and Risk of Polyposis and Colorectal Cancer |
| Authors | Fadwa A. Elsayed; Judith E. Grolleman; Abiramy Rangunathan; Daniel D. Buchanan; Tom van Wezel; Richarda M. de Voer; Arnoud Boot; Marija Staninova Stojovska; Khalid Mahmood; Mark Clendenning; Noel de Miranda; Dagmara Dymerska; Demi van Egmond; Steven Gallinger; Peter Georgeson; Nicoline Hoogerbrugge; John L. Hopper; Erik A.M. Jansen; Mark A. Jenkins; |

- Jihoon E. Joo; Roland P. Kuiper; Marjolijn J.L. Ligtenberg; Jan Lubinski; Finlay A. Macrae; Hans Morreau; Polly Newcomb; Maartje Nielsen; Claire Palles; Daniel J. Park; Bernard J. Pope; Christophe Rosty; Clara Ruiz Ponte; Hans K. Schackert; Rolf H. Sijmons; Ian P. Tomlinson; Carli M.J. Tops; Lilian Vreede; Romy Walker; Aung K. Win
[doi:10.1053/j.gastro.2020.08.042](https://doi.org/10.1053/j.gastro.2020.08.042)
 Journal article
 Gastroenterology
 Elsevier BV
[0016-5085](https://doi.org/10.1016/S0016-5085(20)35113-1)
 Gastroenterology; Hepatology
<https://api.elsevier.com/content/article/PII:S0016508520351131?httpAccept=text/xml>;
<https://api.elsevier.com/content/article/PII:S0016508520351131?httpAccept=text/plain>
61. [doi:10.1038/s41416-021-01619-z](https://doi.org/10.1038/s41416-021-01619-z)
- Title
Molecular pathways in post-colonoscopy versus detected colorectal cancers: results from a nested case-control study
- Authors
Roel M. M. Bogie; Chantal M. C. le Clercq; Quirinus J. M. Voorham; Martijn Cordes; Daoud Sie; Christian Rausch; Evert van den Broek; Sara D. J. de Vries; [Nicole C. T. van Grieken](https://doi.org/10.1038/s41416-021-01619-z); Robert G. Riedl; Prapto Sastrowijoto; Ernst-Jan Speel; Rein Vos; Bjorn Winkens; Manon van Engeland; Bauke Ylstra; Gerrit A. Meijer; [Ad A. M. Masclee](https://doi.org/10.1038/s41416-021-01619-z); [Beatriz Carvalho](https://doi.org/10.1038/s41416-021-01619-z)
- DOI
[doi:10.1038/s41416-021-01619-z](https://doi.org/10.1038/s41416-021-01619-z)
- Type
Journal article
- Published in
British Journal of Cancer
- Published by
Springer Science and Business Media LLC
- ISSNs
[0007-0920](https://doi.org/10.1038/s41416-021-01619-z); [1532-1827](https://doi.org/10.1038/s41416-021-01619-z)
- Subjects
Cancer Research; Oncology
- Links
<https://www.nature.com/articles/s41416-021-01619-z.pdf>;
<https://www.nature.com/articles/s41416-021-01619-z>
62. [doi:10.1038/s41525-021-00242-4](https://doi.org/10.1038/s41525-021-00242-4)
- Title
MCM9 is associated with germline predisposition to early-onset cancer—clinical evidence
- Authors
[Yael Goldberg](https://doi.org/10.1038/s41525-021-00242-4); Ola Aleme; Lilach Peled-Perets; Sergi Castellvi-Bel; Maartje Nielsen; Stavit A. Shalev
- DOI
[doi:10.1038/s41525-021-00242-4](https://doi.org/10.1038/s41525-021-00242-4)
- Type
Journal article
- Published in
npj Genomic Medicine
- Published by
Springer Science and Business Media LLC
- ISSN
[2056-7944](https://doi.org/10.1038/s41525-021-00242-4)
- Subjects
Genetics (clinical); Genetics; Molecular Biology
- Links
<https://www.nature.com/articles/s41525-021-00242-4.pdf>;
<https://www.nature.com/articles/s41525-021-00242-4>

63. [doi:10.3390/cancers13040929](https://doi.org/10.3390/cancers13040929)

Title Germline and Somatic Whole-Exome Sequencing Identifies New Candidate Genes Involved in Familial Predisposition to Serrated Polyposis Syndrome

Authors Yasmin Soares de Lima; Coral Arnau-Collell; [Marcos Díaz-Gay](#); [Laia Bonjoch](#); Sebastià Franch-Expósito; Jenifer Muñoz; [Leticia Moreira](#); Teresa Ocaña; [Miriam Cuatrecasas](#); [Cristina Herrera-Pariente](#); [Sabela Carballal](#); Lorena Moreno; Aránzazu Díaz de Bustamante; [Antoni Castells](#); Luis Bujanda; [Joaquín Cubiella](#); [Daniel Rodríguez-Alcalde](#); [Francesc Balaguer](#); [Sergi Castellví-Bel](#)
[doi:10.3390/cancers13040929](https://doi.org/10.3390/cancers13040929)

DOI

Type Journal article

Published in Cancers

Published by MDPI AG

ISSN [2072-6694](#)

Subjects Cancer Research; Oncology

Link <https://www.mdpi.com/2072-6694/13/4/929/pdf>

64. [doi:10.1093/carcin/bgaa136](https://doi.org/10.1093/carcin/bgaa136)

Title Genetic variations in microRNA-binding sites of solute carrier transporter genes as predictors of clinical outcome in colorectal cancer

Authors Petra Bendova; Barbara Pardini; Simona Susova; Jachym Rosendorf; Miloslav Levy; Pavel Skrobánek; Tomas Buchler; Jan Kral; Vaclav Liska; Ludmila Vodickova; Stefano Landi; Pavel Soucek; [Alessio Naccarati](#); Pavel Vodicka; [Veronika Vymetalkova](#)
[doi:10.1093/carcin/bgaa136](https://doi.org/10.1093/carcin/bgaa136)

DOI

Type Journal article

Published in Carcinogenesis

Published by Oxford University Press (OUP)

ISSNs [0143-3334](#); [1460-2180](#)

Subjects Cancer Research; General Medicine

Links <http://academic.oup.com/carcin/advance-article-pdf/doi/10.1093/carcin/bgaa136/36577760/bgaa136.pdf>;
<http://academic.oup.com/carcin/article-pdf/42/3/378/37119123/bgaa136.pdf>

65. [doi:10.1136/gutjnl-2020-321534](https://doi.org/10.1136/gutjnl-2020-321534)

Title Genetic architectures of proximal and distal colorectal cancer are partly distinct

Authors [Jeroen R Huyghe](#); Tabitha A Harrison; Stephanie A Bien; Heather Hampel; Jane C Figueiredo; Stephanie L Schmit; David V Conti; Sai Chen; Conghui Qu; Yi Lin; Richard Barfield; John A Baron; Amanda J Cross; Brenda Diergaarde; David Duggan; Sophia Harlid; Liher Imaz; Hyun Min Kang; David M Levine; Vittorio Perduca; Aurora Perez-Cornago; Lori C Sakoda; Fredrick R Schumacher; Martha L Slattery; Amanda E Toland; Fränzel J B van Duijnhoven; Bethany Van Guelpen; Antonio Agudo; Demetrius Albanes; M

Henar Alonso; Kristin Anderson; Coral Arnau-Collell; Volker Arndt; Barbara L Banbury; Michael C Bassik; Sonja I Berndt; Stéphane Bézieau; D Timothy Bishop; Juergen Boehm; Heiner Boeing; Marie-Christine Boutron-Ruault; [Hermann Brenner](#); Stefanie Brezina; Stephan Buch; [Daniel D Buchanan](#); Andrea Burnett-Hartman; Bette J Caan; Peter T Campbell; Prudence R Carr; Antoni Castells; Sergi Castellví-Bel; [Andrew T Chan](#); Jenny Chang-Claude; Stephen J Chanock; Keith R Curtis; Albert de la Chapelle; Douglas F Easton; Dallas R English; Edith J M Feskens; Manish Gala; Steven J Gallinger; W James Gauderman; Graham G Giles; Phyllis J Goodman; William M Grady; John S Grove; [Andrea Gsur](#); Marc J Gunter; Robert W Haile; [Jochen Hampe](#); [Michael Hoffmeister](#); John L Hopper; Wan-Ling Hsu; [Wen-Yi Huang](#); Thomas J Hudson; [Mazda Jenab](#); Mark A Jenkins; Amit D Joshi; Temitope O Keku; Charles Kooperberg; Tilman Kühn; Sébastien Küry; Loic Le Marchand; Flavio Lejbkovicz; Christopher I Li; Li Li; Wolfgang Lieb; Annika Lindblom; Noralane M Lindor; Satu Männistö; Sanford D Markowitz; Roger L Milne; Lorena Moreno; [Neil Murphy](#); Rami Nassir; Kenneth Offit; Shuji Ogino; Salvatore Panico; Patrick S Parfrey; Rachel Pearlman; Paul D P Pharoah; Amanda I Phipps; Elizabeth A Platz; John D Potter; Ross L Prentice; Lihong Qi; Leon Raskin; Gad Rennert; Hedy S Rennert; Elio Riboli; Clemens Schafmayer; Robert E Schoen; Daniela Seminara; Mingyang Song; Yu-Ru Su; Catherine M Tangen; Stephen N Thibodeau; Duncan C Thomas; Antonia Trichopoulou; Cornelia M Ulrich; Kala Visvanathan; Pavel Vodicka; Ludmila Vodickova; Veronika Vymetalkova; Korbinian Weigl; Stephanie J Weinstein; Emily White; Alicja Wolk; Michael O Woods; Anna H Wu; Goncalo R Abecasis; Deborah A Nickerson; Peter C Scacheri; Anshul Kundaje; Graham Casey; Stephen B Gruber; Li Hsu; Victor Moreno; Richard B Hayes; Polly A Newcomb; [Ulrike Peters](#)

[doi:10.1136/gutjnl-2020-321534](https://doi.org/10.1136/gutjnl-2020-321534)

Journal article

Gut

BMJ

[0017-5749](#); [1468-3288](#)

Gastroenterology

<https://syndication.highwire.org/content/doi/10.1136/gutjnl-2020-321534>

DOI
Type
Published in
Published by
ISSNs
Subject
Link

66. [doi:10.1038/s41598-021-00014-1](https://doi.org/10.1038/s41598-021-00014-1)

Title

Authors

Faecal miRNA profiles associated with age, sex, BMI, and lifestyle habits in healthy individuals
Antonio Francavilla; Amedeo Gagliardi; Giulia Piaggeschi; Sonia Tarallo; Francesca Cordero;

- DOI
Type
Published in
Published by
ISSN
Subject
Links
- Ruggero G. Pensa; Alessia Impeduglia; Gian Paolo Caviglia; Davide Giuseppe Ribaldone; Gaetano Gallo; Sara Grioni; Giulio Ferrero; Barbara Pardini; Alessio Naccarati
[doi:10.1038/s41598-021-00014-1](https://doi.org/10.1038/s41598-021-00014-1)
Journal article
Scientific Reports
Springer Science and Business Media LLC
[2045-2322](https://doi.org/10.1038/s41598-021-00014-1)
Multidisciplinary
<https://www.nature.com/articles/s41598-021-00014-1.pdf>;
<https://www.nature.com/articles/s41598-021-00014-1>
67. [doi:10.1038/s41598-021-90590-z](https://doi.org/10.1038/s41598-021-90590-z)
Title
Exome sequencing of early-onset patients supports genetic heterogeneity in colorectal cancer
Authors
C. Fernández-Rozadilla; M. Álvarez-Barona; I. Quintana; A. López-Novó; J. Amigo; J. M. Cameselle-Teijeiro; E. Roman; D. Gonzalez; X. Llor; L. Bujanda; X. Bessa; R. Jover; F. Balaguer; A. Castells; S. Castellví-Bel; G. Capellá; A. Carracedo; L. Valle; Clara Ruiz-Ponte
[doi:10.1038/s41598-021-90590-z](https://doi.org/10.1038/s41598-021-90590-z)
Journal article
Scientific Reports
Springer Science and Business Media LLC
[2045-2322](https://doi.org/10.1038/s41598-021-90590-z)
Multidisciplinary
<http://www.nature.com/articles/s41598-021-90590-z.pdf>;
<http://www.nature.com/articles/s41598-021-90590-z>
68. [doi:10.3389/fcell.2021.750022](https://doi.org/10.3389/fcell.2021.750022)
Title
Cross-Talk Between Tumor Cells Undergoing Epithelial to Mesenchymal Transition and Natural Killer Cells in Tumor Microenvironment in Colorectal Cancer
Authors
Ana Vuletić; Katarina Mirjačić Martinović; Nevena Tišma Miletić; Jerome Zoidakis; Sergi Castellví-Bel; Milena Čavić
[doi:10.3389/fcell.2021.750022](https://doi.org/10.3389/fcell.2021.750022)
Journal article
Frontiers in Cell and Developmental Biology
Frontiers Media SA
[2296-634X](https://doi.org/10.3389/fcell.2021.750022)
Cell Biology; Developmental Biology
<https://www.frontiersin.org/articles/10.3389/fcell.2021.750022/full>
69. [doi:10.3390/cancers13112534](https://doi.org/10.3390/cancers13112534)
Title
Comprehensive Volatilome and Metabolome Signatures of Colorectal Cancer in Urine: A Systematic Review and Meta-Analysis
Authors
[Celia Mallafré-Muro](https://doi.org/10.3390/cancers13112534); [Maria Llambrich](https://doi.org/10.3390/cancers13112534); [Raquel](https://doi.org/10.3390/cancers13112534)

- | | |
|--|--|
| DOI
Type
Published in
Published by
ISSN
Subjects
Link | <p> Cumeras; Antonio Pardo; Jesús Brezmes;
 Santiago Marco; Josep Gumà
 doi:10.3390/cancers13112534
 Journal article
 Cancers
 MDPI AG
 2072-6694
 Cancer Research; Oncology
 https://www.mdpi.com/2072-6694/13/11/2534/pdf </p> |
| 70. doi:10.3390/cancers13061259
Title

Authors

DOI
Type
Published in
Published by
ISSN
Subjects
Link | <p> Comprehensive Genomic Characterization of
 Fifteen Early-Onset Lynch-Like Syndrome
 Colorectal Cancers
 Mariano Golubicki; Marcos Díaz-Gay; Laia Bonjoch;
 Sebastià Franch-Expósito; Jenifer Muñoz; Miriam Cuatrecasas;
 Teresa Ocaña; Soledad Iseas; Guillermo Mendez; Marcela Carballido;
 Juan Robbio; Daniel Cisterna; Enrique Roca; Antoni Castells;
 Francesc Balaguer; Sergi Castellví-Bel; Marina Antelo
 doi:10.3390/cancers13061259
 Journal article
 Cancers
 MDPI AG
 2072-6694
 Cancer Research; Oncology
 https://www.mdpi.com/2072-6694/13/6/1259/pdf </p> |
| 71. doi:10.3390/biology10080722
Title

Authors
DOI
Type
Published in
Published by
ISSN
Subjects

Link | <p> Colorectal Cancer Study of Austria (CORSA): A
 Population-Based Multicenter Study
 Andrea Gsur; Andreas Baierl; Stefanie Brezina
 doi:10.3390/biology10080722
 Journal article
 Biology
 MDPI AG
 2079-7737
 General Agricultural and Biological Sciences;
 General Immunology and Microbiology; General
 Biochemistry, Genetics and Molecular Biology
 https://www.mdpi.com/2079-7737/10/8/722/pdf </p> |
| 72. doi:10.1007/s00018-022-04445-5
Title

Authors | <p> ATF2 loss promotes tumor invasion in colorectal
 cancer cells via upregulation of cancer driver
 TROP2
 Kerstin Huebner; Katharina Erlenbach-Wuensch;
 Jan Prochazka; Ilir Sheraj; Chuanpit Hampel;
 Blanka Mrazkova; Tereza Michalcikova; Jolana
 Tureckova; Veronika Iatsiuk; Anne Weissmann;
 Fulvia Ferrazzi; Philipp Kunze; Enise Nalli;
 Elisabeth Sammer; Annemarie Gehring; Marie M.
 Cheema; Markus Eckstein; Eva-Maria Paap;
 Agnes Soederberg; Corinna Fischer; Sushmita
 Paul; Vijayalakshmi Mahadevan; Benardina
 Ndreshkjana; Melanie A. Meier; Susanne
 Muehlich; Carol I. Geppert; Susanne Merkel; </p> |

- | | |
|---|--|
| DOI
Type
Published in
Published by
ISSNs
Subjects | Robert Grutzmann; Adriana Roehe; Sreeparna Banerjee; Arndt Hartmann; Radislav Sedlacek;
Regine Schneider-Stock
doi:10.1007/s00018-022-04445-5
Journal article
Cellular and Molecular Life Sciences
Springer Science and Business Media LLC
1420-682X ; 1420-9071
Cell Biology; Cellular and Molecular Neuroscience; Pharmacology; Molecular Biology; Molecular Medicine |
| Links | https://link.springer.com/content/pdf/10.1007/s00018-022-04445-5.pdf ;
https://link.springer.com/article/10.1007/s00018-022-04445-5/fulltext.html |
| 73. doi:10.1080/19490976.2021.1903825 | |
| Title | Association of Pre-diagnostic Antibody Responses to Escherichia coli and Bacteroides fragilis Toxin Proteins with Colorectal Cancer in a European Cohort |
| Authors | Julia Butt; Mazda Jenab ; Jill Werner; Veronika Fedirko; Elisabete Weiderpass; Christina C. Dahm; Anne Tjønneland; Anja Olsen; Marie-Christine Boutron-Ruault; Joseph A. Rothwell; Gianluca Severi ; Rudolf Kaaks; Renée Turzanski-Fortner; Krasimira Aleksandrova; Matthias Schulze; Domenico Palli; Valeria Pala; Salvatore Panico; Rosario Tumino; Carlotta Sacerdote; Bas Bueno-de-Mesquita; Carla H. Van Gils ; Inger Torhild Gram; Marko Lukic; Núria Sala; María José Sánchez Pérez; Eva Ardanaz; María-Dolores Chirlaque; Richard Palmquist; Thyra Löwenmark; Ruth C Travis; Alicia Heath; Amanda J Cross; Heinz Freisling; Semi Zouiouich; Elom Aglago; Tim Waterboer; David J. Hughes
doi:10.1080/19490976.2021.1903825 |
| DOI | doi:10.1080/19490976.2021.1903825 |
| Type | Journal article |
| Published in | Gut Microbes |
| Published by | Informa UK Limited |
| ISSNs | 1949-0976 ; 1949-0984 |
| Subjects | Infectious Diseases; Microbiology (medical); Gastroenterology; Microbiology |
| Link | https://www.tandfonline.com/doi/pdf/10.1080/19490976.2021.1903825 |
| 74. doi:10.1016/j.clnesp.2021.09.740 | |
| Title | Association of circulating short chain fatty acid levels with colorectal adenomas and colorectal cancer |
| Authors | Flavia Genua ; Bojana Mirković ; Amy Mullee; Miroslav Levy; William M. Gallagher; Pavel Vodicka ; David J. Hughes
doi:10.1016/j.clnesp.2021.09.740 |
| DOI | doi:10.1016/j.clnesp.2021.09.740 |
| Type | Journal article |
| Published in | Clinical Nutrition ESPEN |
| Published by | Elsevier BV |
| ISSN | 2405-4577 |

- | | |
|---|---|
| Subjects | Nutrition and Dietetics; Endocrinology, Diabetes and Metabolism |
| Links | https://api.elsevier.com/content/article/PII:S2405457721010767?httpAccept=text/xml ;
https://api.elsevier.com/content/article/PII:S2405457721010767?httpAccept=text/plain |
|
 | |
| 75. doi:10.3389/fonc.2021.702258 | |
| Title | Analysis of MicroRNA Expression Changes During the Course of Therapy In Rectal Cancer Patients |
| Authors | Klara Cervena; Vendula Novosadova; Barbara Pardini; Alessio Naccarati; Alena Opattova; Josef Horak; Sona Vodenkova; Tomas Buchler; Pavel Skrobaneck; Miroslav Levy; Pavel Vodicka; Veronika Vymetalkova |
| DOI | doi:10.3389/fonc.2021.702258 |
| Type | Journal article |
| Published in | Frontiers in Oncology |
| Published by | Frontiers Media SA |
| ISSN | 2234-943X |
| Subjects | Cancer Research; Oncology |
| Link | https://www.frontiersin.org/articles/10.3389/fonc.2021.702258/full |
|
 | |
| 76. doi:10.1093/bioinformatics/btab591 | |
| Title | Amanida: an R package for meta-analysis of metabolomics non-integral data |
| Authors | Maria Llambrich; Eudald Correig; Josep Gumà; Jesús Brezmes; Raquel Cumeras |
| DOI | doi:10.1093/bioinformatics/btab591 |
| Type | Journal article |
| Published in | Bioinformatics |
| Published by | Oxford University Press (OUP) |
| ISSNs | 1367-4803 ; 1460-2059 |
| Subjects | Computational Mathematics; Computational Theory and Mathematics; Computer Science Applications; Molecular Biology; Biochemistry; Statistics and Probability |
| Links | http://academic.oup.com/bioinformatics/advance-article-pdf/doi/10.1093/bioinformatics/btab591/40394829/btab591.pdf ;
https://academic.oup.com/bioinformatics/article-pdf/38/2/583/42039596/btab591.pdf |
|
 | |
| 77. doi:10.1186/s12916-020-01855-9 | |
| Title | Adiposity, metabolites, and colorectal cancer risk: Mendelian randomization study |
| Authors | Caroline J. Bull ; Joshua A. Bell; Neil Murphy; Eleanor Sanderson; George Davey Smith; Nicholas J. Timpson; Barbara L. Banbury; Demetrius Albanes; Sonja I. Berndt; Stéphane Bézieau; D. Timothy Bishop; Hermann Brenner; Daniel D. Buchanan; Andrea Burnett-Hartman; Graham Casey; Sergi Castellví-Bel; Andrew T. Chan; Jenny Chang-Claude; Amanda J. Cross; Albert de la Chapelle; Jane C. Figueiredo; Steven J. Gallinger; Susan M. Gapstur; Graham G. Giles; |

Stephen B. Gruber; Andrea Gsur; Jochen Hampe; Heather Hampel; Tabitha A. Harrison; Michael Hoffmeister; Li Hsu; Wen-Yi Huang; Jeroen R. Huyghe; Mark A. Jenkins; Corinne E. Joshu; Temitope O. Keku; Tilman Kühn; Sun-Seog Kweon; Loic Le Marchand; Christopher I. Li; Li Li; Annika Lindblom; Vicente Martín; Anne M. May; Roger L. Milne; Victor Moreno; Polly A. Newcomb; Kenneth Offit; Shuji Ogino; Amanda I. Phipps; Elizabeth A. Platz; John D. Potter; Conghui Qu; J. Ramón Quirós; Gad Rennert; Elio Riboli; Lori C. Sakoda; Clemens Schafmayer; Robert E. Schoen; Martha L. Slattery; Catherine M. Tangen; Kostas K. Tsilidis; Cornelia M. Ulrich; Fränzel J. B. van Duijnhoven; Bethany van Guelpen; Kala Visvanathan; Pavel Vodicka; Ludmila Vodickova; Hansong Wang; Emily White; Alicja Wolk; Michael O. Woods; Anna H. Wu; Peter T. Campbell; Wei Zheng; Ulrike Peters; Emma E. Vincent; Marc J. Gunter

[doi:10.1186/s12916-020-01855-9](https://doi.org/10.1186/s12916-020-01855-9)

Journal article

BMC Medicine

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[1741-7015](https://www.bmcmedicine.com/issn/1741-7015)

General Medicine

<http://link.springer.com/content/pdf/10.1186/s12916-020-01855-9.pdf>;

<http://link.springer.com/article/10.1186/s12916-020-01855-9/fulltext.html>

DOI

Type

Published in

Published by

ISSN

Subject

Links

78. [doi:10.1186/s13053-021-00167-0](https://doi.org/10.1186/s13053-021-00167-0)

Title

A rare large duplication of MLH1 identified in Lynch syndrome

Authors

Abhishek Kumar; Nagarajan Paramasivam; Obul Reddy Bandapalli; Matthias Schlesner; Tianhui Chen; Rolf Sijmons; Dagmara Dymerska; Katarzyna Golebiewska; Magdalena Kuswik; Jan Lubinski; Kari Hemminki; [Asta Försti](https://orcid.org/0000-0002-1234-5678)

[doi:10.1186/s13053-021-00167-0](https://doi.org/10.1186/s13053-021-00167-0)

Journal article

Hereditary Cancer in Clinical Practice

Springer Science and Business Media LLC

[1897-4287](https://www.hereditarycancer.com/issn/1897-4287)

Genetics (clinical); Oncology

<http://link.springer.com/content/pdf/10.1186/s13053-021-00167-0.pdf>;

<http://link.springer.com/article/10.1186/s13053-021-00167-0/fulltext.html>

DOI

Type

Published in

Published by

ISSN

Subjects

Links

79. [doi:10.3390/jpm11040262](https://doi.org/10.3390/jpm11040262)

Title

A Novel Low-Risk Germline Variant in the SH2 Domain of the SRC Gene Affects Multiple Pathways in Familial Colorectal Cancer

Authors

Diamanto Skopelitou; Beiping Miao; Aayushi Srivastava; [Abhishek Kumar](https://orcid.org/0000-0002-1234-5678); [Magdalena Kuświk](https://orcid.org/0000-0002-1234-5678); [Dagmara Dymerska](https://orcid.org/0000-0002-1234-5678); Nagarajan Paramasivam; Matthias Schlesner; Jan Lubinski; Kari Hemminki;

- | | |
|--|--|
| <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subject</p> <p>Link</p> | <p>Asta Försti; Obul Reddy Bandapalli
 doi:10.3390/jpm11040262
 Journal article
 Journal of Personalized Medicine
 MDPI AG
 2075-4426
 Medicine (miscellaneous)
 https://www.mdpi.com/2075-4426/11/4/262/pdf</p> |
| <p>80. doi:10.1158/1055-9965.EPI-20-1176</p> <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSNs</p> <p>Subjects</p> <p>Link</p> | <p>A Combined Proteomics and Mendelian Randomization Approach to Investigate the Effects of Aspirin-Targeted Proteins on Colorectal Cancer</p> <p>Aayah Nounu; Alexander Greenhough; Kate J. Heesom; Rebecca C. Richmond; Jie Zheng; Stephanie J. Weinstein; Demetrius Albanes; John A. Baron; John L. Hopper; Jane C. Figueiredo; Polly A. Newcomb; Noralane M. Lindor; Graham Casey; Elizabeth A. Platz; Loïc Le Marchand; Cornelia M. Ulrich; Christopher I. Li; Fränzel J.B. van Duijnhoven; Andrea Gsur; Peter T. Campbell; Victor Moreno; Pavel Vodicka; Ludmila Vodickova; Hermann Brenner; Jenny Chang-Claude; Michael Hoffmeister; Lori C. Sakoda; Martha L. Slattery; Robert E. Schoen; Marc J. Gunter; Sergi Castellví-Bel; Hyeong Rok Kim; Sun-Seog Kweon; Andrew T. Chan; Li Li; Wei Zheng; D. Timothy Bishop; Daniel D. Buchanan; Graham G. Giles; Stephen B. Gruber; Gad Rennert; Zsofia K. Stadler; Tabitha A. Harrison; Yi Lin; Temitope O. Keku; Michael O. Woods; Clemens Schafmayer; Bethany Van Guelpen; Steven Gallinger; Heather Hampel; Sonja I. Berndt; Paul D.P. Pharoah; Annika Lindblom; Alicja Wolk; Anna H. Wu; Emily White; Ulrike Peters; David A. Drew; Dominique Scherer; Justo Lorenzo Bermejo; Ann C. Williams; Caroline L. Relton</p> <p>doi:10.1158/1055-9965.EPI-20-1176
 Journal article
 Cancer Epidemiology, Biomarkers & Prevention
 American Association for Cancer Research (AACR)
 1055-9965; 1538-7755
 Oncology; Epidemiology
 https://aacrjournals.org/cebpa/article-pdf/30/3/564/2289443/564.pdf</p> |
| <p>81. doi:10.1053/j.gastro.2020.08.062</p> <p>Title</p> <p>Authors</p> | <p>Identifying Novel Susceptibility Genes for Colorectal Cancer Risk From a Transcriptome-Wide Association Study of 125,478 Subjects</p> <p>Xingyi Guo; Weiqiang Lin; Wanqing Wen; Jeroen Huyghe; Stephanie Bien; Qiuyin Cai; Tabitha Harrison; Zhishan Chen; Conghui Qu; Jiandong Bao; Jirong Long; Yuan Yuan; Fangqin Wang; Mengqiu Bai; Goncalo R. Abecasis; Demetrius</p> |

Albanes; Sonja I. Berndt; Stéphane Bézieau; [D. Timothy Bishop](#); Hermann Brenner; [Stephan Buch](#); Andrea Burnett-Hartman; Peter T. Campbell; Sergi Castellví-Bel; Andrew T. Chan; Jenny Chang-Claude; Stephen J. Chanock; Sang Hee Cho; David V. Conti; Albert de la Chapelle; Edith J.M. Feskens; Steven J. Gallinger; [Graham G. Giles](#); Phyllis J. Goodman; Andrea Gsur; [Mark Guinter](#); Marc J. Gunter; Jochen Hampe; [Heather Hampel](#); Richard B. Hayes; [Michael Hoffmeister](#); Ellen Kampman; Hyun Min Kang; Temitope O. Keku; Hyeong Rok Kim; Loic Le Marchand; Soo Chin Lee; Christopher I. Li; Li Li; Annika Lindblom; Noralane Lindor; [Roger L. Milne](#); [Victor Moreno](#); Neil Murphy; Polly A. Newcomb; Deborah A. Nickerson; Kenneth Offit; Rachel Pearlman; [Paul D.P. Pharoah](#); Elizabeth A. Platz; [John D. Potter](#); [Gad Rennert](#); Lori C. Sakoda; Clemens Schafmayer; [Stephanie L. Schmit](#); Robert E. Schoen; Fredrick R. Schumacher; Martha L. Slattery; Yu-Ru Su; Catherine M. Tangen; Cornelia M. Ulrich; Franzel J.B. van Duijnhoven; [Bethany Van Guelpen](#); Kala Visvanathan; [Pavel Vodicka](#); Ludmila Vodickova; Veronika Vymetalkova; [Xiaoliang Wang](#); Emily White; [Alicja Wolk](#); Michael O. Woods; Graham Casey; Li Hsu; [Mark A. Jenkins](#); Stephen B. Gruber; Ulrike Peters; Wei Zheng
[doi:10.1053/j.gastro.2020.08.062](https://doi.org/10.1053/j.gastro.2020.08.062)

DOI
Type
Published in
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ISSN
Subjects
Links

Journal article
Gastroenterology
Elsevier BV
[0016-5085](#)
Gastroenterology; Hepatology
<https://api.elsevier.com/content/article/PII:S0016508520352434?httpAccept=text/xml>;
<https://api.elsevier.com/content/article/PII:S0016508520352434?httpAccept=text/plain>

82. [doi:10.1016/j.xhgg.2020.100010](https://doi.org/10.1016/j.xhgg.2020.100010)

Title

Hemochromatosis risk genotype is not associated with colorectal cancer or age at its diagnosis
Gail P. Jarvik; Xiaoliang Wang; Pierre Fontanillas; Esther Kim; Sirisak Chanprasert; Adam S. Gordon; Lisa Bastarache; Kris V. Kowdley; Tabitha Harrison; Elisabeth A. Rosenthal; Ian B. Stanaway; Stéphane Bézieau; Stephanie J. Weinstein; Polly A. Newcomb; Graham Casey; Elizabeth A. Platz; Kala Visvanathan; Loic Le Marchand; Cornelia M. Ulrich; Sheetal Hardikar; Christopher I. Li; Franzel J.B. van Duijnhoven; Andrea Gsur; Peter T. Campbell; Victor Moreno; Pavel Vodička; Hermann Brenner; Jenny Chang-Claude; Michael Hoffmeister; Martha L. Slattery; Marc J. Gunter; Elom K. Aglago; Sergi Castellví-Bel; Sun-Seog Kweon; Andrew T. Chan; Li Li; Wei Zheng; D. Timothy Bishop; Graham G. Giles; Gad Rennert; Kenneth Offit; Temitope O. Keku;

Authors

Michael O. Woods; Jochen Hampe; Bethan Van Guelpen; Steven J. Gallinger; Albert de la Chapelle; Heather Hampel; Sonja I. Berndt; Catherine M. Tangen; Annika Lindblom; Alicja Wolk; Andrea Burnett-Hartman; Anna H. Wu; Emily White; Stephen B. Gruber; Mark A. Jenkins; Joanna Mountain; Ulrike Peters; David R.

Crosslin

[doi:10.1016/j.xhgg.2020.100010](https://doi.org/10.1016/j.xhgg.2020.100010)

Journal article

Human Genetics and Genomics Advances

Elsevier BV

[2666-2477](https://www.elsevier.com/issn/2666-2477)

Genetics (clinical); Molecular Medicine

<https://api.elsevier.com/content/article/PII:S2666247720300105?httpAccept=text/xml>;

<https://api.elsevier.com/content/article/PII:S2666247720300105?httpAccept=text/plain>

DOI

Type

Published in

Published by

ISSN

Subjects

Links

83. [doi:10.1016/j.xhgg.2021.100041](https://doi.org/10.1016/j.xhgg.2021.100041)

Title

Large-scale cross-cancer fine-mapping of the 5p15.33 region reveals multiple independent signals

Authors

Hongjie Chen; Arunabha Majumdar; Lu Wang; Siddhartha Kar; Kevin M. Brown; Helian Feng; Constance Turman; Joe Dennis; Douglas Easton; Kyriaki Michailidou; Jacques Simard; Timothy Bishop; Iona C. Cheng; Jeroen R. Huyghe; Stephanie L. Schmit; Tracy A. O'Mara; Amanda B. Spurdle; Puya Gharahkhani; Johannes Schumacher; Janusz Jankowski; Ines Gockel; Melissa L. Bondy; Richard S. Houlston; Robert B. Jenkins; Beatrice Melin; Corina Lesueur; Andy R. Ness; Brenda Diergaarde; Andrew F. Olshan; Christopher I. Amos; David C. Christiani; Maria T. Landi; James D. McKay; Myriam Brossard; Mark M. Iles; Matthew H. Law; Stuart MacGregor; Jonathan Beesley; Michelle R. Jones; Jonathan Tyrer; Stacey J. Winham; Alison P. Klein; Gloria Petersen; Donghui Li; Brian M. Wolpin; Rosalind A. Eeles; Christopher A. Haiman; Zsofia Kote-Jarai; Fredrick R. Schumacher; Paul Brennan; Stephen J. Chanock; Valerie Gaborieau; Mark P. Purdue; Paul Pharoah; Rayjean J. Hung; Laufey T. Amundadottir; Peter Kraft; Bogdan Pasaniuc; Sara Lindström

[doi:10.1016/j.xhgg.2021.100041](https://doi.org/10.1016/j.xhgg.2021.100041)

Journal article

Human Genetics and Genomics Advances

Elsevier BV

[2666-2477](https://www.elsevier.com/issn/2666-2477)

Genetics (clinical); Molecular Medicine

<https://api.elsevier.com/content/article/PII:S2666247721000221?httpAccept=text/xml>;

<https://api.elsevier.com/content/article/PII:S2666247721000221?httpAccept=text/plain>

DOI

Type

Published in

Published by

ISSN

Subjects

Links

84. [doi:10.1158/1055-9965.EPI-22-0042](https://doi.org/10.1158/1055-9965.EPI-22-0042)

- Title Evaluating the Potential of Polygenic Risk Score to Improve Colorectal Cancer Screening
Authors Coral Arnau-Collell; [Anna Díez-Villanueva](#); [Beatriz Bellosillo](#); [Josep M. Augé](#); [Jenifer Muñoz](#); Elisabet Guinó; [Leticia Moreira](#); Anna Serradesanferm; Àngels Pozo; Isabel Torà-Rocamora; [Laia Bonjoch](#); [Gemma Ibañez-Sanz](#); [Mireia Obon-Santacana](#); Ferran Moratalla-Navarro; Rebeca Sanz-Pamplona; Carmen Márquez Márquez; [Rebeca Rueda Miret](#); Rocío Pérez Berbegal; [Gabriel Piquer Velasco](#); Cristina Hernández Rodríguez; [Jaume Grau](#); [Antoni Castells](#); [Josep M. Borràs](#); [Xavier Bessa](#); [Victor Moreno](#); [Sergi Castellví-Bel](#)
DOI [doi:10.1158/1055-9965.EPI-22-0042](https://doi.org/10.1158/1055-9965.EPI-22-0042)
Type Journal article
Published in Cancer Epidemiology, Biomarkers & Prevention
Published by American Association for Cancer Research (AACR)
ISSNs [1055-9965](#); [1538-7755](#)
Subjects Oncology; Epidemiology
Links <https://aacrjournals.org/cebpa/article-pdf/doi/10.1158/1055-9965.EPI-22-0042/3127456/epi-22-0042.pdf>; <https://aacrjournals.org/cebpa/article-pdf/doi/10.1158/1055-9965.EPI-22-0042/3161184/epi-22-0042.pdf>; <https://aacrjournals.org/cebpa/article-pdf/31/7/1305/3186303/1305.pdf>
85. [doi:10.3390/cancers14030628](https://doi.org/10.3390/cancers14030628)
Title Nonmalignant Features Associated with Inherited Colorectal Cancer Syndromes-Clues for Diagnosis
Authors Diana Haimov; [Sari Lieberman](#); [Sergi Castellví-Bel](#); [Maartje Nielsen](#); [Yael Goldberg](#)
DOI [doi:10.3390/cancers14030628](https://doi.org/10.3390/cancers14030628)
Type Journal article
Published in Cancers
Published by MDPI AG
ISSN [2072-6694](#)
Subjects Cancer Research; Oncology
Link <https://www.mdpi.com/2072-6694/14/3/628/pdf>
86. [doi:10.3390/ijms22041837](https://doi.org/10.3390/ijms22041837)
Title Whole Exome Sequencing Identifies APCDD1 and HDAC5 Genes as Potentially Cancer Predisposing in Familial Colorectal Cancer
Authors Diamanto Skopelitou; Beiping Miao; Aayushi Srivastava; [Abhishek Kumar](#); Magdalena Kuświk; [Dagmara Dymerska](#); Nagarajan Paramasivam; [Matthias Schlesner](#); Jan Lubinski; Kari Hemminki; [Asta Försti](#); [Obul Bandapalli](#)
DOI [doi:10.3390/ijms22041837](https://doi.org/10.3390/ijms22041837)
Type Journal article
Published in International Journal of Molecular Sciences
Published by MDPI AG
ISSN [1422-0067](#)

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|---|---|
| Subjects | Inorganic Chemistry; Organic Chemistry; Physical and Theoretical Chemistry; Computer Science Applications; Spectroscopy; Molecular Biology; General Medicine; Catalysis |
| Link | https://www.mdpi.com/1422-0067/22/4/1837/pdf |
| 87. doi:10.4149/neo_2021_210603N749 | |
| Title | Prognostic potential of circulating miR-93-5p in patients with colorectal cancer liver metastases |
| Authors | Jovana Despotović; Aleksandar Bogdanović; Sandra Dragičević; Danijel Galun; Zoran Krivokapić; Aleksandra Nikolić |
| DOI | doi:10.4149/neo_2021_210603N749 |
| Type | Journal article |
| Published in | Neoplasma |
| Published by | AEPress, s.r.o. |
| ISSN | 1338-4317 |
| Subjects | Cancer Research; Oncology |
| 88. doi:10.1016/j.ajhg.2022.03.018 | |
| Title | Germline MBD4 deficiency causes a multi-tumor predisposition syndrome |
| Authors | Claire Palles; Hannah D. West; Edward Chew; Sara Galavotti; Christoffer Flensburg; Judith E. Grolleman; Erik A.M. Jansen; Helen Curley; Laura Chegwiddden; Edward H. Arbe-Barnes; Nicola Lander; Rebekah Truscott; Judith Pagan; Ashish Bajel; Kitty Sherwood; Lynn Martin; Huw Thomas; Demetra Georgiou; Florentia Fostira; Yael Goldberg; David J. Adams; Simone A.M. van der Biezen; Michael Christie; Mark Clendenning; Laura E. Thomas; Constantinos Deltas; Aleksandar J. Dimovski; Dagmara Dymerska; Jan Lubinski; Khalid Mahmood; Rachel S. van der Post; Mathijs Sanders; Jürgen Weitz; Jenny C. Taylor; Clare Turnbull; Lilian Vreede; Tom van Wezel; Celina Whalley; Claudia Arnedo-Pac; Giulio Caravagna; William Cross; Daniel Chubb; Anna Frangou; Andreas J. Gruber; Ben Kinnersley; Boris Noyvert; David Church; Trevor Graham; Richard Houlston; Nuria Lopez-Bigas; Andrea Sottoriva; David Wedge; Mark A. Jenkins; Roland P. Kuiper; Andrew W. Roberts; Jeremy P. Cheadle; Marjolijn J.L. Ligtenberg; Noline Hoogerbrugge; Viktor H. Koelzer; Andres Dacal Rivas; Ingrid M. Winship; Clara Ruiz Ponte; Daniel D. Buchanan; Derek G. Power; Andrew Green; Ian P.M. Tomlinson ; Julian R. Sampson; Ian J. Majewski; Richarda M. de Voer |
| DOI | doi:10.1016/j.ajhg.2022.03.018 |
| Type | Journal article |
| Published in | The American Journal of Human Genetics |
| Published by | Elsevier BV |
| ISSN | 0002-9297 |
| Subjects | Genetics (clinical); Genetics |
| Links | https://api.elsevier.com/content/article/PII:S0002929722001148?httpAccept=text/xml ;
https://api.elsevier.com/content/article/PII:S0002929722001148?httpAccept=text/xml |

89. [doi:10.1093/ajcn/nqab003](https://doi.org/10.1093/ajcn/nqab003)

Genetically predicted circulating concentrations of micronutrients and risk of colorectal cancer among individuals of European descent: a Mendelian randomization study.

Tsilidis KK, Papadimitriou N, Dimou N, Gill D, Lewis SJ, Martin RM, Murphy N, Markozannes G, Zuber V, Cross AJ, Burrows K, Lopez DS, Key TJ, Travis RC, Perez-Cornago A, Hunter DJ, van Duijnhoven FJB, Albanes D, Arndt V, Berndt SI, Béziau S, Bishop DT, Boehm J, Brenner H, Burnett-Hartman A, Campbell PT, Casey G, Castellví-Bel S, Chan AT, Chang-Claude J, de la Chapelle A, Figueiredo JC, Gallinger SJ, Giles GG, Goodman PJ, Gsur A, Hampe J, Hampel H, Hoffmeister M, Jenkins MA, Keku TO, Kweon SS, Larsson SC, Le Marchand L, Li CI, Li L, Lindblom A, Martín V, Milne RL, Moreno V, Nan H, Nassir R, Newcomb PA, Offit K, Pharoah PDP, Platz EA, Potter JD, Qi L, Rennert G, Sakoda LC, Schafmayer C, Slattery ML, Snetseelaar L, Schenk J, Thibodeau SN, Ulrich CM, Van Guelpen B, Harlid S, Visvanathan K, Vodickova L, Wang H, White E, Wolk A, Woods MO, Wu AH, Zheng W, Bueno-de-Mesquita B, Boutron-Ruault MC, Hughes DJ, Jakszyn P, Kühn T, Palli D, Riboli E, Giovannucci EL, Banbury BL, Gruber SB, Peters U, Gunter MJ.

Am J Clin Nutr. 2021 Jun 1;113(6):1490-1502.

doi: 10.1093/ajcn/nqab003.

90.

Multi-omic analysis of 100,204 Europeans and Asians identifies 103 new colorectal cancer risk associations and provides insights into disease etiology.

Ceres Fernandez-Rozadilla, Maria Timofeeva, Zhishan Che, Philip Law, Minta Thoma, Stephanie Schmit, Virginia Díez-Obrero, Li Hsu, Juan Fernandez-Tajes, Claire Palles, Kitty Sherwood, Sarah Briggs, Victoria Svinti, Kevin Donnelly, Susan Farrington, James Blackmur, Peter Vaughan-Shaw, Xiao-ou Shu, Jirong Long, Qiuyin Cai, Xingyi Guo, Yingchang Lu, Peter Broderick, Jeroen Huyghe, Tabitha Harrison, David Conti, Christopher Dampier, Fredrick Schumacher, Marilena Melas, Gad Rennert, Mireia Obón-Santacana, Vicente Martín-Sánchez, Ferran Moratalla-Navarro, Jae Hwan Oh, Jeongseon Kim, Sun Ha Jee, Keum Ji Jung, Sun-Seog Kweon, Min-Ho Shin, Aesun Shin, Yoon-Ok Ahn, Dong-Hyun Kim, Isao Oze, Wanqing Wen, Keitaro Matsuo, Koichi Matsuda, Chizu Tanikawa, Zefang Ren, Yu-Tang Gao, Wei-Hua Jia, John Hopper, Mark Jenkins, Aung Ko Win, Rish Pai, Jane Figueiredo, Robert Haile, Steven Gallinger, Michael Woods, Polly Newcomb, David Duggan, Jeremy Cheadle, Richard Kaplan, Timothy Maughan, Rachel Kerr, David Kerr, Iva Kirac, CORGI study investigators, SCOT trial translational group and investigators, Jan Böhm, Jukka-Pekka Mecklin, Pekka Jousilahti, Paul Knekt, Lauri Aaltonen, Harri Rissanen, Eero Pukkala, Johan Eriksson, Tatiana Cajuso, Ulrika Hänninen, Johanna Kondelin, Kimmo Palin, Tomas Tanskanen, Laura Renkonen-Sinisalo, Brent Zanke, Satu Männistö, Demetrius Albanes, Stephanie Weinstein, Edward Ruiz-Narvaez, Julie Palmer, Daniel Buchanan, Elizabeth Platz, Kala Visvanathan, Cornelia Ulrich, Erin Siegel, Stefanie Brezina, Andrea Gsur, Peter Campbell, Jenny Chang-Claude, Michael Hoffmeister, Hermann Brenner, Martha Slattery, John Potter, Konstantinos Tsilidis, Matthias Schulze, Marc Gunter, Neil Murphy, Antoni Castells, Sergi Castellví-Bel, Leticia Moreira, Volker Arndt, Anna Shcherbina, Mariana Stern, Bens Pardamean, Timothy Bishop, Graham Giles, Melissa Southey, Gregory Idos, Kevin McDonnell, Zomoroda Abu-Ful, Joel Greenson, Katerina Shulman, Flavio Lejbkovicz, Kenneth Offit, Yu-Ru Su, Robert Steinfeld, Temitope Keku, Bethany van Guelpen, Thomas Hudson, Heather Hampel, Rachel Pearlman, Sonja Berndt, Richard Hayes, Marie Elena Martinez, Sushma Thomas, Douglas Corley, Paul Pharoah, Susanna Larsson, Yun Yen, Heinz-Josef Lenz, Emily White, Li Li, Kimberly Doheny, Elizabeth Pugh, Tameka Shelford,

Andrew Chan, Marcia Cruz-Correa, Annika Lindblom, David Hunter, Amit Joshi, Clemens Schafmayer, Peter Scacheri, Anshul Kundaje, Deborah Nickerson, Robert Schoen, Jochen Hampe, Zsofia Stadler, Pavel Vodicka, Ludmila Vodickova, Veronika Vymetalkova, Nickolas Papadopoulos, Christopher Edlund, William Gauderman, Duncan Thomas, David Shibata, Amanda Toland, Sanford Markowitz, Andre Kim, Stephen Chanock, Franzel van Duijnhoven, Edith Feskens, Lori Sakoda, Manuela Gago-Dominguez, Alicja Wolk, Alessio Naccarati, Barbara Pardini, Liesel FitzGerald, Soo Chin Lee, Shuji Ogino, Stephanie Bien, Charles Kooperberg, Christopher Li, Yi Lin, Ross Prentice, Conghui Qu, Stéphane Béziau, Catherine Tangen, Elaine Mardis, Loic Le Marchand, Anna Wu, Chenxu Qu, Caroline McNeil, Gerhard Coetzee, Caroline Hayward, Ian Deary, Sarah Harris, Evropi Theodoratou, Stuart Reid, Marion Walker, Li Yin Ooi, Victor Moreno, Graham Casey, Stephen Gruber, Ian Tomlinson, Wei Zheng, Malcolm Dunlop, Richard Houlston, Ulrike Peters.

Nature Genetics 2022 (in press)

91. [doi:10.3390/cancers14030699](https://doi.org/10.3390/cancers14030699)

Title Potential Involvement of NSD1, KRT24 and ACACA in the Genetic Predisposition to Colorectal Cancer

Authors [Isabel Quintana](#); [Pilar Mur](#); [Mariona Terradas](#); [Sandra García-Mulero](#); Gemma Aiza; Matilde Navarro; [Virginia Piñol](#); [Joan Brunet](#); [Victor Moreno](#); [Rebeca Sanz-Pamplona](#); Gabriel Capellá; [Laura Valle](#)

DOI [doi:10.3390/cancers14030699](https://doi.org/10.3390/cancers14030699)

Type Journal article

Published in Cancers

Published by MDPI AG

ISSN [2072-6694](#)

Subjects Cancer Research; Oncology

Link <https://www.mdpi.com/2072-6694/14/3/699/pdf>

92. [doi:10.3390/cancers14030670](https://doi.org/10.3390/cancers14030670)

Title Germline Variants of CYBA and TRPM4 Predispose to Familial Colorectal Cancer

Authors [Lizhen Zhu](#); Beiping Miao; Dagmara Dymerska; Magdalena Kuswik; [Elena Bueno-Martínez](#); [Lara Sanoguera-Miralles](#); [Eladio A. Velasco](#); Nagarajan Paramasivam; [Matthias Schlesner](#); [Abhishek Kumar](#); Ying Yuan; [Jan Lubinski](#); [Obul Reddy Bandapalli](#); [Kari Hemminki](#); [Asta Försti](#)

DOI [doi:10.3390/cancers14030670](https://doi.org/10.3390/cancers14030670)

Type Journal article

Published in Cancers

Published by MDPI AG

ISSN [2072-6694](#)

Subjects Cancer Research; Oncology

Link <https://www.mdpi.com/2072-6694/14/3/670/pdf>

93. [doi:10.1007/s00438-022-01896-0](https://doi.org/10.1007/s00438-022-01896-0)

Title Whole exome sequencing identifies novel germline variants of SLC15A4 gene as potentially cancer predisposing in familial colorectal cancer

Authors Diamanto Skopelitou; Aayushi Srivastava; Beiping Miao; Abhishek Kumar; Dagmara Dymerska; Nagarajan Paramasivam; Matthias Schlesner; Jan Lubinski; Kari Hemminki; Asta Försti; [Obul Reddy Bandapalli](#)

DOI [doi:10.1007/s00438-022-01896-0](https://doi.org/10.1007/s00438-022-01896-0)

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| <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSNs</p> <p>Subjects</p> <p>Links</p> | <p>Journal article</p> <p>Molecular Genetics and Genomics</p> <p>Springer Science and Business Media LLC</p> <p>1617-4615; 1617-4623</p> <p>Genetics; Molecular Biology; General Medicine</p> <p>https://link.springer.com/content/pdf/10.1007/s00438-022-01896-0.pdf;</p> <p>https://link.springer.com/article/10.1007/s00438-022-01896-0/fulltext.html</p> |
| <p>94. doi:10.3390/ijms23031295</p> | |
| <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSN</p> <p>Subjects</p> <p>Link</p> | <p>Whole-Exome Sequencing Identifies a Novel Germline Variant in PTK7 Gene in Familial Colorectal Cancer</p> <p>Beiping Miao; Diamanto Skopelitou; Aayushi Srivastava; Sara Giangiobbe; Dagmara Dymerska; Nagarajan Paramasivam; Abhishek Kumar; Magdalena Kuświk; Wojciech Kluźniak; Katarzyna Paszkowska-Szczur; Matthias Schlesner; Jan Lubinski; Kari Hemminki; Asta Försti; Obul Reddy Bandapalli</p> <p>doi:10.3390/ijms23031295</p> <p>Journal article</p> <p>International Journal of Molecular Sciences</p> <p>MDPI AG</p> <p>1422-0067</p> <p>Inorganic Chemistry; Organic Chemistry; Physical and Theoretical Chemistry; Computer Science Applications; Spectroscopy; Molecular Biology; General Medicine; Catalysis</p> <p>https://www.mdpi.com/1422-0067/23/3/1295/pdf</p> |
| <p>95. doi:10.1038/s41431-021-00926-6</p> | |
| <p>Title</p> <p>Authors</p> <p>DOI</p> <p>Type</p> <p>Published in</p> <p>Published by</p> <p>ISSNs</p> <p>Subjects</p> <p>Links</p> | <p>Solving the enigma of POLD1 p.V295M as a potential cause of increased cancer risk</p> <p>Pilar Mur; Lorena Magraner-Pardo; Sandra García-Mulero; Anna Díez-Villanueva; Jesús del Valle; Elsa Ezquerro; Conxi Lázaro; Gabriel Capellá; Victor Moreno; Rebeca Sanz-Pamplona; Tirso Pons; Laura Valle</p> <p>doi:10.1038/s41431-021-00926-6</p> <p>Journal article</p> <p>European Journal of Human Genetics</p> <p>Springer Science and Business Media LLC</p> <p>1018-4813; 1476-5438</p> <p>Genetics (clinical); Genetics</p> <p>https://www.nature.com/articles/s41431-021-00926-6.pdf;</p> <p>https://www.nature.com/articles/s41431-021-00926-6</p> |
| <p>96. doi: 10.1002/ijc.33338</p> | |

Circulating adipokine concentrations and risk of five obesity-related cancers: a Mendelian randomization study.

Dimou NL, Papadimitriou N, Mariosa D, Johansson M, Brennan P, Peters U, Chanock SJ, Purdue

M, Bishop DT, Gago-Dominquez M, Giles GG, Moreno V, Platz EA, Tangen CM, Wolk A, Zheng W, Wu X, Campbell PT, Giovannucci E, Lin Y; CCFR, Endometrial Cancer Association Consortium, Gunter MJ, Murphy N.

Int J Cancer 2021;148(7):1625-1636. doi: 10.1002/ijc.33338.

97. [doi: 10.2217/epi-2020-0029](https://doi.org/10.2217/epi-2020-0029)

DNA methylation events in transcription factors and gene expression changes in colon cancer.

Díez-Villanueva A, Sanz-Pamplona R, Carreras-Torres R, Moratalla-Navarro F, Alonso MH, Paré-Brunet L, Aussó S, Guinó E, Solé X, Cordero D, Salazar R, Berdasco M, Peinado MA, Moreno V.

Epigenomics 2020;12(18):1593-1610. doi: 10.2217/epi-2020-0029.

98. [doi: 10.3390/cancers14174214](https://doi.org/10.3390/cancers14174214)

Meta-Analysis and Validation of a Colorectal Cancer Risk Prediction Model Using Deep Sequenced Fecal Metagenomes.

Obón-Santacana M, Mas-Lloret J, Bars-Cortina D, Criado-Mesas L, Carreras-Torres R, Díez-Villanueva A, Moratalla-Navarro F, Guinó E, Ibáñez-Sanz G, Rodríguez-Alonso L, Mulet-Margalef N, Mata A, García-Rodríguez A, Duell EJ, Pimenoff VN, Moreno V.

Cancers (Basel) 2022;14(17):4214. doi: 10.3390/cancers14174214.

99. [doi:10.3390/cancers14163866](https://doi.org/10.3390/cancers14163866)

Title	Discovery and Validation of Clinically Relevant Long Non-Coding RNAs in Colorectal Cancer
Authors	Madison Snyder; Susana Iraola-Guzmán; Ester Saus; Toni Gabaldón
DOI	doi:10.3390/cancers14163866
Type	Journal article
Published in	Cancers
Published by	MDPI AG
ISSN	2072-6694
Subjects	Cancer Research; Oncology
Link	https://www.mdpi.com/2072-6694/14/16/3866/pdf

100. [doi:10.3390/cancers12102844](https://doi.org/10.3390/cancers12102844)

Title	Target Enrichment Enables the Discovery of lncRNAs with Somatic Mutations or Altered Expression in Paraffin-Embedded Colorectal Cancer Samples
Authors	Susana Iraola-Guzmán; Anna Brunet-Vega; Cinta Pegueroles ; Ester Saus; Hrant Hovhannisyan ; Alex Casalots; Carles Pericay; Toni Gabaldón
DOI	doi:10.3390/cancers12102844
Type	Journal article
Published in	Cancers
Published by	MDPI AG
ISSN	2072-6694
Subjects	Cancer Research; Oncology
Link	https://www.mdpi.com/2072-6694/12/10/2844/pdf

Projects

The Action reported 31 project(s) and 19 proposal(s) resulting from the Action networking.

Key details of the projects are shown below:

1. Exploring the role of microbiota and metabolic interactions in the development of gastrointestinal cancers
(National)
2. Exploring the role of genetically determined BMI in infancy, childhood and early adulthood on cancer development in later life
(National)
3. Organ-VIP: Genetically modified organoids for genetic variant interpretation in colorectal cancer
(H2020 - Horizon Europe)
4. Establishment of compatible institutional registers and network of counseling centers for hereditary gastrointestinal tumors
(Trans-national - Scientific and technological cooperation between Republic of Serbia and Republic of Croatia)
5. A mechanistic study of the role of the aldo keto reductase AKR1B10 in dysregulated metabolic networks in hepatocellular carcinoma
(National)
6. Tracking systemic therapy resistance of lung and colorectal cancer through targeted NGS analysis of genetic and epigenetic variants in liquid biopsies (TRACEPIGEN)
(National)
7. Molecular basis of response to chemioradiotherapy in rectal cancer
(National)
8. SENSOGENE - Cancer biosensors based on gene regulatory elements
(National)
9. Identification of pharmacogenomic biomarkers using whole exome sequencing in patients with colorectal cancer (LTC19015)
(National)
10. RAtional design of canceR ImmunoTherapY: one size does not fit all (RARITY)
(H2020 - Horizon Europe)
11. Repair of DNA lesions induced by platinum drugs
(H2020 - Horizon Europe)
12. Role of novel suspect molecules associated with resistance of cancer cells to taxanes
(National)
13. Feasibility study of next generation sequencing for individualized therapy of patients with solid tumors
(National)
14. Liquid biopsies
(Trans-national - Private funding from Peru to develop work in Norway)
15. Liquid biopsies
(Trans-national - Private funding from Peru to develop work in Norway)
16. EUCANCan: a federated network of aligned and interoperable infrastructures for the homogeneous analysis, management and sharing of genomic oncology data for Personalized Medicine
(H2020 - Horizon Europe)
17. Gut MICRObiome-based approach for incorporating new biomarkers into COLOrectal cancer screening (MICROCOLO)
(National)
18. Molecular adenoma features to predict colorectal cancer risk (IntEnd study)
(National)
19. New genetic variants causing increased cancer risk with impact in diagnosis and treatment
(Programme 2), Colorectal Cancer subdivision
(National)
20. Integrated approach to target early onset colorectal cancer: from familial risk evaluation to precision therapy
(National)

21. Targeting metastases in colorectal cancer: identification of early biomarkers and development of novel drug delivery therapies
(National)
22. MICAfrica-Towards a North-African Consortium of the Human Microbiome (NACHM) through strengthening the Capacities in Microbiome Analysis for Human Diseases at University of Sfax (H2020 - Horizon Europe)
23. ONCOBIOME-Gut OncoMicrobiome Signatures (GOMS) associated with cancer incidence, prognosis and prediction of treatment response
(H2020 - Horizon Europe)
24. SINO-GERMAN MOBILITY PROGRAMME: Clinical implications of familial colorectal cancer
(Trans-national - SINO-GERMAN MOBILITY PROGRAMME)
25. Colorectal cancer research
(National)
26. Identification and development of novel colorectal cancer biomarkers via state-of-the-art liquid biopsy approaches (ColoMARK)
(H2020 - Horizon Europe)
27. Twinning for a European Consortium of Rectal Cancer Research Institutions through Stepping Up Scientific, Technological and Innovation Excellence of IORS (STEPUPIORS)
(H2020 - Horizon Europe)
28. Photoswitchable and chimeric molecules for spatially restricted and endoplasmic reticulum-specific blockade of PD-L1 protein
(National)
29. Voomics - Omics approaches to investigate the anticancer properties of colonic metabolites derived from Virgin Olive Oil
(National)
30. New genetic variants causing increased cancer risk with impact in diagnosis and treatment
(National)
31. Molecular adenoma features to predict colorectal cancer risk
(National)

Other outputs / achievements

The following other outputs/ achievements contributing to the COST mission resulted from the Action:

1. It should be mentioned that, produced by participants in TRANSCOLONCAN, the special issue – “New insights on the molecular aspects of colorectal cancer” of 10 review research articles in the Molecular Aspects of Medicine journal surely serves as a interesting, up-to-date series of recommendations covering the different disciplines and WGs developed in this Action (<https://www.sciencedirect.com/journal/molecular-aspects-of-medicine/vol/69>):
 - The landscape of genomic copy number alterations in colorectal cancer and their consequences on gene expression levels and disease outcome. Ried et. Mol Aspects Med. 2019 Oct;69:48-61. doi: 10.1016/j.mam.2019.07.007
 - Lifestyle and dietary environmental factors in colorectal cancer susceptibility. Murphy et al. Mol Aspects Med. 2019 Oct;69:2-9. doi: 10.1016/j.mam.2019.06.005.
 - Circulating biomarkers for early detection and clinical management of colorectal cancer. Marcuello et al. Mol Aspects Med. 2019 Oct;69:107-122. doi: 10.1016/j.mam.2019.06.002.

- Colorectal cancer: A paradigmatic model for cancer immunology and immunotherapy. IJsselsteijn et al. *Mol Aspects Med.* 2019 Oct;69:123-129. doi: 10.1016/j.mam.2019.05.003.
 - Somatic mutational signatures in polyposis and colorectal cancer. Grolleman et al. *Mol Aspects Med.* 2019 Oct;69:62-72. doi: 10.1016/j.mam.2019.05.002.
 - Microbiome and colorectal cancer: Roles in carcinogenesis and clinical potential. Saus et al. *Mol Aspects Med.* 2019 Oct;69:93-106. doi: 10.1016/j.mam.2019.05.001.
 - DNA methylation and chromatin modifiers in colorectal cancer. Vymetalkova et al. *Mol Aspects Med.* 2019 Oct;69:73-92. doi: 10.1016/j.mam.2019.04.002.
 - Approaches to functionally validate candidate genetic variants involved in colorectal cancer predisposition. Bonjoch et al. *Mol Aspects Med.* 2019 Oct;69:27-40. doi: 10.1016/j.mam.2019.03.004.
 - Update on genetic predisposition to colorectal cancer and polyposis. Valle et al. *Mol Aspects Med.* 2019 Oct;69:10-26. doi: 10.1016/j.mam.2019.03.001.
 - Mendelian randomisation: A powerful and inexpensive method for identifying and excluding non-genetic risk factors for colorectal cancer. Cornish et al. *Mol Aspects Med.* 2019 Oct;69:41-47. doi: 10.1016/j.mam.2019.01.002.
2. SOPs for the detection of CRC and adenomas CTCs, ctDNA, exosomes and TEP have not been developed during the life of this Action. However, the following reviews (including those in the special issue – “New insights on the molecular aspects of colorectal cancer” of 10 review research articles in the *Molecular Aspects of Medicine* journal surely serves as a interesting, up-to-date series of recommendations covering the different disciplines and WGs developed in this Action (<https://www.sciencedirect.com/journal/molecular-aspects-of-medicine/vol/69>) and one white paper related to WG2 were produced:
- Murphy N, et al. Lifestyle and dietary environmental factors in colorectal cancer susceptibility. *Mol Aspects Med* 2019;69:2-9. <https://doi.org/10.1016/j.mam.2019.06.005>.
- Valle L, et al. Update on genetic predisposition to colorectal cancer and polyposis. *Mol Aspects Med* 2019;69:10-26. <https://doi.org/10.1016/j.mam.2019.03.001>.
- Bonjoch L, et al. Approaches to functionally validate candidate genetic variants involved in colorectal cancer predisposition. *Mol Aspects Med* 2019;69:27-40. <https://doi.org/10.1016/j.mam.2019.03.004>.
- Cornish AJ, et al. Mendelian randomisation: A powerful and inexpensive method for identifying and excluding non-genetic risk factors for colorectal cancer. *Mol Aspects Med* 2019;69:41-47. <https://doi.org/10.1016/j.mam.2019.01.002>.

- Ried T, et al. The landscape of genomic copy number alterations in colorectal cancer and their consequences on gene expression levels and disease outcome. *Mol Aspects Med* 2019;69:48-61. <https://doi.org/10.1016/j.mam.2019.07.007>.
- Grolleman JE, et al. Somatic mutational signatures in polyposis and colorectal cancer. *Mol Aspects Med* 2019;69:62-72. <https://doi.org/10.1016/j.mam.2019.05.002>.
- Vymetalkova V, et al. DNA methylation and chromatin modifiers in colorectal cancer. *Mol Aspects Med* 2019;69:73-92. <https://doi.org/10.1016/j.mam.2019.04.002>.
- Saus E, et al. Microbiome and colorectal cancer: Roles in carcinogenesis and clinical potential. *Mol Aspects Med* 2019;69:93-106. <https://doi.org/10.1016/j.mam.2019.05.001>.
- Marcuello M, et al. Circulating biomarkers for early detection and clinical management of colorectal cancer. *Mol Aspects Med* 2019;69:107-122. <https://doi.org/10.1016/j.mam.2019.06.002>.
- IJsselsteijn ME, et al. Colorectal cancer: A paradigmatic model for cancer immunology and immunotherapy. *Mol Aspects Med* 2019;69:123-129. <https://doi.org/10.1016/j.mam.2019.05.003>.
- Cervena K, et al. Diagnostic and prognostic impact of cell-free DNA in human cancers: Systematic review. *Mutat Res Rev Mutat Res* 2019;781:100-129. <https://doi.org/10.1016/j.mrrev.2019.05.002>.
- Francavilla A, et al. Exosomal microRNAs and other non-coding RNAs as colorectal cancer biomarkers: a review. *Mutagenesis* 2020;35(3):243-260. <https://doi.org/10.1093/mutage/gez038>.
- Schubert SA, et al. The missing heritability of familial colorectal cancer. *Mutagenesis* 2020;35(3):221-231. <https://doi.org/10.1093/mutage/gez027>.
- Genua F, et al. The Role of Gut Barrier Dysfunction and Microbiome Dysbiosis in Colorectal Cancer Development. *Front Oncol* 2021;11:626349. <https://doi.org/10.3389/fonc.2021.626349>.
- Daca Alvarez M, et al. The Inherited and Familial Component of Early-Onset Colorectal Cancer. *Cells* 2021;10(3):710. <https://doi.org/10.3390/cells10030710>.
- Mallafré-Muro C, et al. Comprehensive Volatilome and Metabolome Signatures of Colorectal Cancer in Urine: A Systematic Review and Meta-Analysis. *Cancers* 2021;13(11):2534. <https://doi.org/10.3390/cancers13112534>.
- Haimov D, et al. Nonmalignant Features Associated with Inherited Colorectal Cancer Syndromes- Clues for Diagnosis. *Cancers* 2022;14(3):628. <https://doi.org/10.3390/cancers14030628>.
- Connors D, et al. International liquid biopsy standardization alliance white paper. *Crit Rev Oncol Hematol* 2020;156:103112. <https://doi.org/10.1016/j.critrevonc.2020.103112>. (WG2 white paper)
3. An educational video about metabolomics was disseminated (Science in 1 minute: what is metabolomics; <https://www.transcoloncan.eu/news/2/science-in-1-minute-what-is-metabolomics>). This topic is underrepresented within WG1 and hopefully participants with this expertise will increase in the near future.
 4. Godfrey Grech, associate professor of Pathology at the University of Malta and TRANSCOLONCAN member, has established an educational YouTube channel on gut health (<https://www.youtube.com/channel/UCZjdjRj6zlyGmgYAWwbARBQ>). The featured video series provides knowledge that can be acted upon to reduce the risk of cancer and to support screening programs and other early detection strategies.
 5. On the other hand, being this Action focused on timely and realistic research questions in the CRC field, intellectual property (IP) matters were expected. The following intellectual property items were reported by participants:

Inventors: Toni Gabaldón, Olfat Khannous, Ester Saus, Sergi Castellvi-Bel

Patent: Method for screening for colorectal cancer using fecal microbiome profiling

EP22179747

Inventors: Beatriz Carvalho

Patent: Protein biomarkers for detection of colorectal cancer (CRC)

2008707;EP13720130.7;14/396,522, NL 2010276;PCT/NL13/50316;15/444,679;EP19201973.5

Inventors: Beatriz Carvalho

Patent: Protein biomarkers (II) for detection of colorectal cancer in stoolNL

17172531.0;2017-009-02;2017-009-03;2017-009-04;2017-009-05;2017-009-06

Inventors: Beatriz Carvalho

Patent: Progression markers for colorectal cancer

EP19187894.1;PCT/NL2020/050482

6. An educational video about genetic predisposition was disseminated (Science in 1 minute: what is genetic predisposition; <https://www.transcoloncan.eu/news/18/science-in-1-minute-what-is-genetic-predisposition>).
7. A dissemination video on cancer risk prediction (<https://videos.iarc.fr/videos/?video=MEDIA210115103248594>) was also produced.
8. The dissemination video "What does it mean to have a genetic predisposition to cancer?" (<https://www.youtube.com/watch?v=OQ6ViflKd4Q>) was produced for Researchers' Night 2020.
9. The dissemination video about her work on microbiome and colorectal cancer was produced by Flavia Genua for Researchers' Night 2020 (<https://www.youtube.com/watch?v=8TwNECG7eUY>).
10. The dissemination video "What is cancer?" was produced by Noel de Miranda (<https://www.youtube.com/watch?v=12vzu9cJlXQ>).
11. A final dissemination video was produced as a summary of the achievements of the Action. It was shot at the final conference in June 2022 . Both short (intended for social networks; <https://twitter.com/transcoloncan>) and long versions are available (<https://www.youtube.com/watch?v=qQ7MsA5HVBk>).

Impacts

The Action reported the following impact(s):

Description of the impact, i.e. what will change, and for whom, as a result of what the Action achieved	Type of impact	Timing of impact
<p>Novel methods have been developed by WG4 participants for correct pathogenicity assessment of genetic variants, including the use of CRISPR-Cas and organoid modeling. New genes for hereditary CRC have been identified by participants. Examples correspond to NTHL1, MBD4, FAF1, MCM9 or MCM8. Benefits are scientific, economic (screening is directed to carriers) and societal (patients are benefited with a more targeted care). Additional impacts are foreseen in the near future with the identification of additional new germline genes for hereditary CRC.</p> <p>Relevant publications are the following:</p> <p>WG4. Grolleman JE, et al. Mutational Signature Analysis Reveals NTHL1 Deficiency to Cause a Multi-tumor Phenotype. <i>Cancer Cell</i> 2019 Feb 11;35(2):256-266.e5. https://doi.org/10.1016/j.ccell.2018.12.011.</p> <p>WG4. Mur P, et al. Role of POLE and POLD1 in familial cancer. <i>Genet Med</i> 2020;22(12):2089-2100. https://doi.org/10.1038/s41436-020-0922-2.</p> <p>WG4. Bonjoch et al. Germline mutations in FAF1 are associated with hereditary colorectal cancer. <i>Gastroenterology</i> 2020;159:227–240; https://doi.org/10.1053/j.gastro.2020.03.015.</p> <p>WG4. Palles C, et al. Germline MBD4 deficiency causes a multi-tumor predisposition syndrome. <i>Am J Hum Genet.</i> 2022 May 5;109(5):953-960. https://doi.org/10.1016/j.ajhg.2022.03.018.</p> <p>WG4. Huebner K, et al. ATF2 loss promotes tumor invasion in colorectal cancer cells via upregulation of cancer driver TROP2. <i>Cell Mol Life Sci</i> 2022;79(8):423. https://doi.org/10.1007/s00018-022-04445-5.</p>	<ul style="list-style-type: none"> • Scientific / Technological • Economic • Societal 	<p>Achieved</p>
<p>A risk model has been generated by WG1 participants by using low-penetrance germline CRC predisposition variants, microbiome and environmental factors and these variables are being tested as predictors for CRC and advanced adenomas. Substantial improvement of the current methods used in CRC screening programs is expected.</p> <p>Related publications are the following:</p> <p>WG1. Thomas et al. Genome-wide Modeling of Polygenic Risk Score in Colorectal Cancer Risk. <i>American Journal of Human Genetics</i> 2020; 107(3):432-444; https://doi.org/10.1016/j.ajhg.2020.07.006.</p> <p>WG1. Krigul KL, et al. Using fecal immunochemical tubes for the analysis of the gut microbiome has the potential to improve colorectal cancer screening. <i>Scientific Reports</i> 2021;11(1):19603. https://doi.org/10.1038/s41598-021-99046-w.</p> <p>WG1. Gumpenberger T, et al. Untargeted Metabolomics Reveals Major Differences in the Plasma Metabolome between Colorectal Cancer and Colorectal Adenomas. <i>Metabolites</i> 2021;11(2):119. https://doi.org/10.3390/metabo11020119</p>	<ul style="list-style-type: none"> • Scientific / Technological • Economic • Societal 	<p>Achieved</p>

<p>WG1. Tarallo S, et al. Stool microRNA profiles reflect different dietary and gut microbiome patterns in healthy individuals. <i>Gut</i> 2022;71:1302-1314. https://doi.org/10.1136/gutjnl-2021-325168.</p> <p>WG1. Fernandez-Rozadilla et al. Multi-omic analysis of 100,204 Europeans and Asians identifies 103 new colorectal cancer risk associations and provides insights into disease etiology. <i>Nature Genetics</i> 2022, in press.</p>		
<p>CTCs, circulating tumor nucleic acids and exosomes have been tested by participants in WG2 as non-invasive biomarkers for early detection of CRC. They could improve CRC screening by detecting this neoplasm earlier. Health care costs will be reduced by detecting cases at an earlier stage. Patients will have a better prognosis since their cancer will be detected and treated also earlier.</p> <p>Relevant publications are the following:</p> <p>WG2. Marcuello M, et al. Circulating biomarkers for early detection and clinical management of colorectal cancer. <i>Molecular Aspects of Medicine</i> 2019;69:107-122. https://doi.org/10.1016/j.mam.2019.06.002.</p> <p>WG2. Duran-Sanchon et al. Identification and Validation of MicroRNA Profiles in Fecal Samples for Detection of Colorectal Cancer. <i>Gastroenterology</i> 2020; 158(4):947-957; https://doi.org/10.1053/j.gastro.2019.10.005.</p> <p>WG2. Sabo AA, et al. Small Non-Coding RNA Profiling in Plasma Extracellular Vesicles of Bladder Cancer Patients by Next-Generation Sequencing: Expression Levels of miR-126-3p and piR-5936 Increase with Higher Histologic Grades. <i>Cancers</i> 2020;12(6):1507. https://doi.org/10.3390/cancers12061507.</p> <p>WG2. Cervena K, et al. Mutational landscape of plasma cell-free DNA identifies molecular features associated with therapeutic response in patients with colon cancer. A pilot study. <i>Mutagenesis</i> 2021;36(5):358-368. https://doi.org/10.1093/mutage/geab024.</p>	<ul style="list-style-type: none"> • Scientific / Technological • Economic • Societal 	<p>Achieved</p>
<p>Novel approaches in WG3 such as single-cell genomics have been considered tumor heterogeneity. It will permit a better tumor profiling, unraveling new tumor biomarkers with prognosis and predictive value. It represents an improvement in tumor characterization on the line of personalized medicine. Again, patients and health care will be in the end benefited.</p> <p>A collaborative research study conducted at IDIBAPS (Spain), IDIBELL (Spain) and NKI (The Netherlands) aims at collecting early-stage CRC samples to infer the role of (i) chromosome instability by quantifying DNA double-strand breaks (Dr. Fijneman and Dr. Carvalho, NKI) and (ii) the subclonal distribution of copy-number alterations and aneuploidy burden (Dr. Camps and Dr. Moreno, IDIBAPS and IDIBELL, respectively) to predict the risk of disease recurrence. In addition, we have started a collaboration with Dr. Graham from ICR (UK) to detect copy-number heterogeneity in circulating tumor DNA. Both initiatives will result in highly relevant publications.</p> <p>Transferring novel tumor biomarkers to the daily-bases clinical practice is the ultimate goal of WG3. In this regard, several ongoing collaborative studies are using genomic tools to assess how circulating tumor cells reproduce the genetic content present in the matched primary tumor (IDIBAPS and Heinrich-Heine-Universität Düsseldorf), how copy-number alterations are responsible of the adenoma progression (NKI, Charles University of Prague and</p>	<ul style="list-style-type: none"> • Scientific / Technological • Economic • Societal 	<p>Foreseen within two years</p>

<p>IDIBAPS). Grant applications are currently being under preparation (e.g., HORIZON-MISS-2021-CANCER-02-03 call: Proposal number 101096714, Acronym MOMO) and scientific articles will be submitted for publication.</p> <p>Related publications are the following:</p> <p>WG3. Demirkol Canlı S, et al. Evaluation of an aldo-keto reductase gene signature with prognostic significance in colon cancer via activation of epithelial to mesenchymal transition and the p70S6K pathway. <i>Carcinogenesis</i> 2020;41(9):1219-1228. https://doi.org/10.1093/carcin/bgaa072.</p> <p>WG3. Galofré C, et al. Tetraploidy-Associated Genetic Heterogeneity Confers Chemo-Radiotherapy Resistance to Colorectal Cancer Cells. <i>Cancers</i> 2020;12(5):1118. https://doi.org/10.3390/cancers12051118.</p> <p>WG3. Bogie RMM, et al. Molecular pathways in post-colonoscopy versus detected colorectal cancers: results from a nested case-control study. <i>Br J Cancer</i> 2022;126(6):865-873. https://doi.org/10.1038/s41416-021-01619-z.</p> <p>WG3. Martens-de Kemp SR, et al. Overexpression of the miR-17-92 cluster in colorectal adenoma organoids causes a carcinoma-like gene expression signature. <i>Neoplasia</i> 2022;32:100820. https://doi.org/10.1016/j.neo.2022.100820.</p>		
<p>Innovative CRC treatments such as immunotherapies have been verified by WG4 participants, Introducing immunotherapy as a new (neo-)adjuvant treatment option in the clinical practice is one the ultimate goals of WG4. In this regard, several undergoing collaborative studies are trying to understand what determines responses to cancer immunotherapy (in the neoadjuvant setting) so that: 1) appropriate patient selection can be implemented and 2) additional patients may be sensitized to immune checkpoint blockade.</p>	<ul style="list-style-type: none"> • Scientific / Technological • Economic • Societal 	<p>Foreseen two-to-five years</p>

Dissemination and exploitation of Action results

Dissemination and exploitation approach of the Action

The Action's dissemination and exploitation approach as well as all activities undertaken to ensure dissemination and exploitation of Action results and the outcomes of these activities are described below.

TRANSCOLONCAN was open to all participants with common objectives and had a final number of active participants of 495 from 37 countries. The active participation in this network of other consortia or institutions in the field of study such as the Genetics and Epidemiology of Colorectal Cancer Consortium (GECCO), or the Nutrition and Metabolism research branch of the International Agency for Research on Cancer (IARC) were important. As previously mentioned, this COST Action sought involvement of several SMEs from its beginning. At the end of this Action, there were 16 SMEs from 12 countries interested and participating in this consortium. They attended meetings, interacted with researchers and made presentations about their own research and developed products. The main idea behind the implication of these SMEs was to facilitate the relationship between basic researchers involved in this consortium and these companies to increase their collaboration in order to bring to market the discoveries achieved by researchers. Finally, this network also engaged patients' organizations. Recently, patients have evolved in the research environment from mere objects of study to active contributors. They can participate in the design of studies, in improving the effective communication with them, or in working together for policy change.

Dissemination meetings funded by the Action

The Action did not fund any Dissemination Meetings

Other dissemination activities

The Action also undertook the following dissemination activities:

Activity	Sergi Castellví-Bel. Oral presentation. Identifying biomarkers through translational research for prevention and stratification of colorectal cancer (TRANSCOLONCAN). COST Action CA16113 meeting 2018. Belgrade (Serbia)
Target	Participants of the COST Action CA16113 "CliniMARK: 'good biomarker practice' to increase the number of clinically validated biomarkers"
Outcome	Interaction of our COST Action network with participants of COST Action CA16113
Link	https://clinimark.eu/

Activity	COST Connect on the future of European cancer research Beating cancer in 2030: Mission impossible? (Brussels, 21 and 22 May 2019)
Target	A wide range of COST Actions are working on different aspects of cancer research and this COST Connect event paved the way towards a closer cooperation between research networks and other relevant stakeholders such as the European Institutions and other organisations in the field. The represented Actions included CA15135 (Multi-target paradigm for innovative ligand identification in the drug discovery process (MuTaLig)), CA15204 (European Platform for Outcomes Research into Perioperative Interventions during Surgery for Cancer), CA17103 (Delivery of Antisense RNA Therapeutics), CA17140 (Cancer nanomedicine - from the bench to the bedside), CA17118 (Identifying Biomarkers Through Translational Research for Prevention and Stratification of Colorectal Cancer) and CA18117 (European network for Gynaecological Rare Cancer research: From Concept to Cure), among others.
Outcome	This event offered an interactive forum to participants involved in cancer research, in an attempt to identify the current needs and gaps in the field, a prerequisite for achieving effective treatments. Our Action was represented by our Vice-Chair, Dr. Richarda de Voer.
Link	https://www.cost.eu/news/beating-cancer-in-2030/

Activity	The European Researchers' Night 2019 and 2020, funded under the Marie Skłodowska-Curie actions (MSCA).
Target	It is a Europe-wide public event that brings researchers closer to the public.
Outcome	The Night provides researchers the opportunity to showcase the diversity of science and its impact on citizens' daily lives, and to stimulate interest in research careers – especially among young people. The events highlight how researchers contribute to our society by displaying their work in an interactive and engaging forum. Participants were involved in 2019 in the following events: - MEET, 818910, Italy, www.meetmetonight.it - NOCMOC, 818352, Slovenia, www.nocmoc.eu - SCIMFONICOM2018-19, 818747, Serbia, nocistrzivaca.rs Events involvement for 2020 is being currently arranged.
Link	https://ec.europa.eu/research/mariecurieactions/actions/european-researchers-night_en

Activity	2nd International Congress on Precision Medicine 2019 in Munich (Germany)
Target	Research scientists, biotech companies and stakeholders working in personalized medicine.
Outcome	The Chair, Sergi Castellvi-Bel, presented a poster with an overview of the Action, aimed at disseminating the network and reaching out to additional interested partners.
Link	https://www.transcoloncan.eu/news/6/international-congress-on-precision-medicine

Activity	27th United European Gastroenterology Week held in Barcelona in 2019
Target	This meeting represents an international forum for clinical practice and research in gastroenterology attended by more than 12,000 participants. The Action was presented within the session "EU funded Cooperation Networks in GI: How to get involved?".
Outcome	The Chair of the TRANSCOLONCAN COST Action, Sergi Castellvi-Bel, gave a presentation of the Action's aims and ongoing work to help attract additional participants.
Link	https://ueg.eu/week

Activity	Several scientific presentations related to the work being developed by participants within the Action.
Target	Research scientists, biotech companies and stakeholders attending the specified meetings. Specific details about presentations are avoided for concision.
Outcome	Scientific presentations in the 2019, 2020, 2021 and/or the 2022 editions in the annual meetings of the following international societies: American Society of Human Genetics, European Society of Human Genetics, European Association of Cancer Research, American Association of Cancer Research, International Society for Gastrointestinal Hereditary Tumors (InSIGHT), European Hereditary Tumour Group, European Society of Medical Oncology, ECCO-the European Cancer Conference, European Multidisciplinary Colorectal Cancer Congress (EMCCC), European Consortium 'Care for CMMRD' (C4CMMRD), and Collaborative Group of the Americas on Inherited Colorectal Cancer (CGA-ICC), among others. As well, presentations of results took place also scientific societies at the national level.
Link	https://www.eshg.org/index.php?id=europe

Exploitation activities

The Action undertook the following activities to ensure exploitation (use, in particular in a commercial context) of the Action's achievements:

Activity	Intellectual property (inventors are participants from the Action: Saray Duran-Sanchon; Antoni Castells; Meritxell Gironella)
Target	Commercial exploitation of a research result. Companies interested in liquid biopsy approaches for early detection of colorectal cancer.

Outcome	Patent request: NON-INVASIVE METHOD FOR THE DIAGNOSIS OR SCREENING OF COLORECTAL CANCER AND/OR PRE-CANCEROUS STAGE THEREOF. REQUEST No: EP19382597.3 DATE: 15/07/2019 ENTITY: IDIBAPS-CIBER-Universitat de Barcelona. COUNTRIES: Europa; International (PCT) PCT application number: PCT/EP2020/069918 PCT FILING DATE: 14/07/2020
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Activity	Intellectual property (inventors are participants from the Action: Beatriz Carvalho; Gerrit Meijer)
Target	Commercial exploitation of a research result. Companies interested in biomarker genes for colorectal adenoma screening
Outcome	Patent application P122194EP00 about biomarker genes for colorectal adenoma screening

Activity	Intellectual property (inventors are participants from the Action: Toni Gabaldon; Ester Saus; Olfat Khannous; Sergi Castellvi-Bel)
Target	Commercial exploitation of a research result. Companies interested in biomarkers for colorectal cancer screening
Outcome	Patent application EP22179747 about a method for screening for colorectal cancer using fecal microbiome profiling

Activity	Intellectual property (inventors are participants from the Action: Beatriz Carvalho)
Target	Commercial exploitation of a research result. Companies interested in biomarker genes for colorectal cancer screening
Outcome	Patent application 2008707;EP13720130.7;14/396,522, NL 2010276;PCT/NL13/50316;15/444,679;EP19201973.5 about protein biomarkers for detection of colorectal cancer

Activity	Intellectual property (inventors are participants from the Action: Beatriz Carvalho)
Target	Commercial exploitation of a research result. Companies interested in biomarker genes for colorectal cancer screening in stool
Outcome	Patent application NL17172531.0;2017-009-02;2017-009-03;2017-009-04;2017-009-05;2017-009-06 about protein biomarkers (II) for detection of colorectal cancer in stool

Activity	Intellectual property (inventors are participants from the Action: Beatriz Carvalho)
Target	Commercial exploitation of a research result. Companies interested in biomarker genes for colorectal cancer screening
Outcome	Patent application EP19187894.1;PCT/NL2020/050482 about progression markers for colorectal cancer monitoring

Action Success(es)

The Action's two most significant successes were the following:

- The uprising of ITC researchers. It has been very rewarding to witness the progress in the field of study of some researchers from ITC countries. It should be noted that the enthusiasm and active participation in the activities organized by this network was excellent regarding ITC participants, usually even more active than from those participants from non-ITC. It should be highlighted that ITC participants from Czech Republic, Estonia, Malta, North Macedonia, Poland, Portugal, Romania, Serbia and Turkey were among the more interested and active. With two specific examples, it has been nice to witness their positive progress in the last four years by achieving important research results (<https://www.nature.com/articles/s41598-021-99046-w>, Estonia) or obtaining relevant EU funding (Twinning STEPUIORS in Serbia). ITC participants acted satisfactorily as WG chairs, leading the Science Communication committee, the STSM committee, the Training schools committee. Also, with the intention of bringing excellent science to these locations, about half of meetings were organized with success in ITC countries (MC+WGs meeting in Skopje, North Macedonia; WG4 meeting in Krakow, Poland; MC+WG2 meeting in Belgrade, Serbia; MC+WG3 meeting in Bucharest, Romania). It is also important to highlight that being part of this Action helped ITC participants to obtain national funding.
- No more gender gap in science was a reality. Regarding gender balance, it was widely promoted during the lifetime of TRANSCOLONCAN. There were 295 women participants at the end of the network, corresponding to 59.6 % (295/495). Gender balance was also endorsed in management roles, and women were appointed as Vice-chair of the Action, WG leaders (WG1, WG2, WG4) and WG co-leaders (all WGs), Committees leaders (science communication, research funding, SME) and Committees co-leaders (all committees). More details can be found at <https://www.transcoloncan.eu/management/>. Also, when accepting participants in activities and meetings, gender balance was also observed. Most speakers at meetings were women. In general, it can be considered that women were more active than men, and activities and meetings had a higher percentage of them. Indeed, it should be highlighted that women were very active in our consortium and they are major contributors to its success. One of the major highlights of this Action is the success of the MSCA Doctoral Network ColoMARK proposal on liquid biopsies led by Ceres Fernandez-Rozadilla, a young female researcher from Spain and with the collaboration of other participants of this network (<https://www.transcoloncan.eu/news/24/colomark-new-msca-network>).

Action Expenditure

The table below shows the budget allocated to the Action for each Grant Period:

#	Grant Period	Start Date	End Date	Budget allocated to Action (EUR)
1	AGA-CA17118-1	1-11-2018	30-4-2019	120,002.50 (EUR)
2	AGA-CA17118-2	1-5-2019	30-4-2020	139,075.25 (EUR)
3	AGA-CA17118-3	1-5-2020	31-10-2021	139,515.86 (EUR)
4	AGA-CA17118-4	1-11-2021	30-9-2022	154,795.75 (EUR)