

## DAFTAR PUSTAKA

- 1 Marabotto, E. *et al.* Colorectal Cancer in Inflammatory Bowel Diseases: Epidemiology and Prevention: A Review. *Cancers (Basel)* **14**, doi:10.3390/cancers14174254 (2022).
- 2 Birch, R. J. *et al.* Inflammatory Bowel Disease-Associated Colorectal Cancer Epidemiology and Outcomes: An English Population-Based Study. *Am J Gastroenterol* **117**, 1858-1870, doi:10.14309/ajg.0000000000001941 (2022).
- 3 Sanjaya, I. W. B., Lestarini, A. & Bharata, M. D. Y. Karakteristik Klinis pada Pasien Kanker Kolorektal yang Menjalani Kolonoskopi di RSUD Sanjiwani Gianyar Tahun 2019-2020. *AMJ (Aesculapius Medical Journal)* **3**, 43-48 (2023).
- 4 Astuti, N. S. A., Rafli, R. & Zeffira, L. Profil dan Kesintasan Penderita Kanker Kolorektal di RSUP Dr. M. Djamil Padang. *Health and Medical Journal* **1**, 45-49 (2019).
- 5 Porter, R. J., Arends, M. J., Churchhouse, A. M. D. & Din, S. Inflammatory Bowel Disease-Associated Colorectal Cancer: Translational Risks from Mechanisms to Medicines. *J Crohns Colitis* **15**, 2131-2141, doi:10.1093/ecco-jcc/jjab102 (2021).
- 6 Lucafò, M., Curci, D., Franzin, M., Decorti, G. & Stocco, G. Inflammatory Bowel Disease and Risk of Colorectal Cancer: An Overview From Pathophysiology to Pharmacological Prevention. *Front Pharmacol* **12**, 772101, doi:10.3389/fphar.2021.772101 (2021).
- 7 Ohnishi, S., Hiramoto, K., Ma, N. & Kawanishi, S. Chemoprevention by Aspirin Against Inflammation-Related Colorectal Cancer in Mice. *Journal of Clinical Biochemistry and Nutrition*, doi:10.3164/jcbn.20-189 (2021).
- 8 Nardone, O. M., Zammarchi, I., Santacroce, G., Ghosh, S. & Iacucci, M. Inflammation-Driven Colorectal Cancer Associated with Colitis: From Pathogenesis to Changing Therapy. *Cancers (Basel)* **15**, doi:10.3390/cancers15082389 (2023).
- 9 Gupta, A., Madani, R. & Mukhtar, H. Streptococcus bovis endocarditis, a silent sign for colonic tumour. *Colorectal Dis* **12**, 164-171, doi:10.1111/j.1463-1318.2009.01814.x (2010).
- 10 Kostic, A. D. *et al.* Genomic analysis identifies association of Fusobacterium with colorectal carcinoma. *Genome Res* **22**, 292-298, doi:10.1101/gr.126573.111 (2012).
- 11 Viljoen, K. S., Dakshinamurthy, A., Goldberg, P. & Blackburn, J. M. Quantitative profiling of colorectal cancer-associated bacteria reveals associations between fusobacterium spp., enterotoxigenic Bacteroides fragilis (ETBF) and clinicopathological features of colorectal cancer. *PLoS One* **10**, e0119462, doi:10.1371/journal.pone.0119462 (2015).
- 12 Buc, E. *et al.* High prevalence of mucosa-associated E. coli producing cyclomodulin and genotoxin in colon cancer. *PLoS One* **8**, e56964, doi:10.1371/journal.pone.0056964 (2013).
- 13 Wang, T. *et al.* Structural segregation of gut microbiota between colorectal cancer patients and healthy volunteers. *ISME J* **6**, 320-329, doi:10.1038/ismej.2011.109 (2012).
- 14 Lin, P. C., Li, S. C., Lin, H. P. & Shih, C. K. Germinated Brown Rice Combined With Lactobacillus Acidophilus and Bifidobacterium Animalis Subsp. lactis Inhibits Colorectal Carcinogenesis in Rats. *Food Science & Nutrition*, doi:10.1002/fsn3.864 (2018).
- 15 Melia, S. & Sugitha, I. KUALITAS DADIH SUSU SAPI MUTAN Lactococcus lactis PADA BEBERAPA LEVEL WAKTU FERMENTASI [The Quality of

- Dadih Mutan *Lactococcus Lactis* at Various Fermentation Times]. *Journal of the Indonesian Tropical Animal Agriculture* **32**, 86-90 (2007).
- 16 Hossain, M. S. *et al.* Colorectal Cancer: A Review of Carcinogenesis, Global Epidemiology, Current Challenges, Risk Factors, Preventive and Treatment Strategies. *Cancers (Basel)* **14**, doi:10.3390/cancers14071732 (2022).
- 17 Kasi, A. *et al.* Molecular Pathogenesis and Classification of Colorectal Carcinoma. *Curr Colorectal Cancer Rep* **16**, 97-106, doi:10.1007/s11888-020-00458-z (2020).
- 18 Watson, A. & Collins, P. Colon Cancer: A Civilization Disorder. *Digestive Diseases*, doi:10.1159/000323926 (2011).
- 19 Paterson, C. & Božić, I. Mathematical Model of Colorectal Cancer Initiation. *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.2003771117 (2020).
- 20 Kámory, E., Olasz, J. & Csuka, O. Somatic APC Inactivation Mechanisms in Sporadic Colorectal Cancer Cases in Hungary. *Pathology & Oncology Research*, doi:10.1007/s12253-008-9019-y (2008).
- 21 Kinzler, K. W. & Vogelstein, B. Lessons From Hereditary Colorectal Cancer. *Cell*, doi:10.1016/s0092-8674(00)81333-1 (1996).
- 22 Hankey, W., Frankel, W. L. & Groden, J. Functions of the APC Tumor Suppressor Protein Dependent and Independent of Canonical WNT Signaling: Implications for Therapeutic Targeting. *Cancer and Metastasis Reviews*, doi:10.1007/s10555-017-9725-6 (2018).
- 23 Fearon, E. R. Molecular Genetics of Colorectal Cancer. *Annual Review of Pathology Mechanisms of Disease*, doi:10.1146/annurev-pathol-011110-130235 (2011).
- 24 Yang, J. *et al.* Adenomatous Polyposis Coli (APC) Differentially Regulates B-Catenin Phosphorylation and Ubiquitination in Colon Cancer Cells. *Journal of Biological Chemistry*, doi:10.1074/jbc.m600831200 (2006).
- 25 Hiltunen, M. *et al.* Hypermethylation of the APC (Adenomatous Polyposis Coli) Gene Promoter Region in Human Colorectal Carcinoma. *International Journal of Cancer*, doi:10.1002/(sici)1097-0215(19970317)70:6<644::aid-ijc3>3.0.co;2-v (1997).
- 26 Half, E. E., Bercovich, D. & Rozen, P. Familial Adenomatous Polyposis. *Orphanet Journal of Rare Diseases*, doi:10.1186/1750-1172-4-22 (2009).
- 27 Misale, S. *et al.* Emergence of KRAS Mutations and Acquired Resistance to Anti-Egfr Therapy in Colorectal Cancer. *Nature*, doi:10.1038/nature11156 (2012).
- 28 Zhang, J., Park, D., Shin, D. M. & Deng, X. Targeting KRAS-mutant Non-Small Cell Lung Cancer: Challenges and Opportunities. *Acta Biochimica Et Biophysica Sinica*, doi:10.1093/abbs/gmv118 (2016).
- 29 Bonnot, P. E. & Passot, G. RAS Mutation: Site of Disease and Recurrence Pattern in Colorectal Cancer. *Chinese Clinical Oncology*, doi:10.21037/cco.2019.08.11 (2019).
- 30 Varshavi, D. *et al.* Metabonomics Study of the Effects of Single Copy Mutant KRAS in the Presence or Absence of WT Allele Using Human HCT116 Isogenic Cell Lines. *Metabolomics*, doi:10.1007/s11306-021-01852-w (2021).
- 31 Tie, J. *et al.* KRAS Mutation Is Associated With Lung Metastasis in Patients With Curatively Resected Colorectal Cancer. *Clinical Cancer Research*, doi:10.1158/1078-0432.ccr-10-1720 (2011).
- 32 Klein, C. *et al.* PDE $\delta$  Inhibition Impedes the Proliferation and Survival of Human Colorectal Cancer Cell Lines Harboring Oncogenic KRas. *International Journal of Cancer*, doi:10.1002/ijc.31859 (2018).
- 33 Lilja, J. *et al.* Targeting a Broad Spectrum of KRAS-Mutant Cancers by Hyperactivation-Induced Cell Death. doi:10.1101/2022.09.21.508660 (2022).

- 34 López, I. *et al.* Different mutation profiles associated to P53 accumulation in colorectal cancer. *Gene* **499**, 81-87, doi:10.1016/j.gene.2012.02.011 (2012).
- 35 Ryan, K. M., Phillips, A. C. & Vousden, K. H. Regulation and function of the p53 tumor suppressor protein. *Curr Opin Cell Biol* **13**, 332-337, doi:10.1016/s0955-0674(00)00216-7 (2001).
- 36 Russo, A. *et al.* The TP53 colorectal cancer international collaborative study on the prognostic and predictive significance of p53 mutation: influence of tumor site, type of mutation, and adjuvant treatment. *J Clin Oncol* **23**, 7518-7528, doi:10.1200/jco.2005.00.471 (2005).
- 37 Li, X. L., Zhou, J., Chen, Z. R. & Chng, W. J. P53 mutations in colorectal cancer - molecular pathogenesis and pharmacological reactivation. *World J Gastroenterol* **21**, 84-93, doi:10.3748/wjg.v21.i1.84 (2015).
- 38 Iacopetta, B. TP53 mutation in colorectal cancer. *Hum Mutat* **21**, 271-276, doi:10.1002/humu.10175 (2003).
- 39 Iacopetta, B. *et al.* Functional categories of TP53 mutation in colorectal cancer: results of an International Collaborative Study. *Ann Oncol* **17**, 842-847, doi:10.1093/annonc/mdl035 (2006).
- 40 Pino, M. S. & Chung, D. C. The Chromosomal Instability Pathway in Colon Cancer. *Gastroenterology*, doi:10.1053/j.gastro.2009.12.065 (2010).
- 41 Mazeh, H. *et al.* The Diagnostic and Prognostic Role of microRNA in Colorectal Cancer - A Comprehensive Review. *Journal of Cancer*, doi:10.7150/jca.5836 (2013).
- 42 Al-Sohaily, S., Biankin, A. V., Leong, R. W., Kohonen-Corish, M. & Warusavitarne, J. Molecular Pathways in Colorectal Cancer. *Journal of Gastroenterology and Hepatology*, doi:10.1111/j.1440-1746.2012.07200.x (2012).
- 43 Tian, R. *et al.* ALOX15 as a Suppressor of Inflammation and Cancer: Lost in the Link. *Prostaglandins & Other Lipid Mediators*, doi:10.1016/j.prostaglandins.2017.01.002 (2017).
- 44 Kesselring, R. & Fichtner-Feigl, S. Immune Responses Triggering Colitis and Colitis-Associated Carcinoma. *Langenbeck S Archives of Surgery*, doi:10.1007/s00423-012-0927-7 (2012).
- 45 Cawkwell, L. *et al.* Defective hMSH2/hMLH1 Protein Expression Is Seen Infrequently in Ulcerative Colitis Associated Colorectal Cancers. *Gut*, doi:10.1136/gut.46.3.367 (2000).
- 46 Zhu, G. *et al.* MyD88 Regulates LPS-induced NF- $\kappa$ B/MAPK Cytokines and Promotes Inflammation and Malignancy in Colorectal Cancer Cells. *Cancer Genomics & Proteomics*, doi:10.21873/cgp.20145 (2019).
- 47 Zhao, Y. *et al.* Small Molecule GL-V9 Protects Against Colitis-Associated Colorectal Cancer by Limiting NLRP3 Inflammasome Through Autophagy. *Oncoimmunology*, doi:10.1080/2162402x.2017.1375640 (2017).
- 48 Clapper, M. L., Cooper, H. S. & Chang, W. C. L. Dextran Sulfate Sodium-Induced Colitis-Associated Neoplasia: A Promising Model for the Development of Chemopreventive Interventions. *Acta Pharmacologica Sinica*, doi:10.1111/j.1745-7254.2007.00695.x (2007).
- 49 Steele, S. R. *et al.* The impact of age on colorectal cancer incidence, treatment, and outcomes in an equal-access health care system. *Dis Colon Rectum* **57**, 303-310, doi:10.1097/DCR.0b013e3182a586e7 (2014).
- 50 Demb, J. *et al.* Risk factors for colorectal cancer significantly vary by anatomic site. *BMJ Open Gastroenterol* **6**, e000313, doi:10.1136/bmjgast-2019-000313 (2019).



- 51 Gausman, V. *et al.* Risk Factors Associated With Early-Onset Colorectal Cancer. *Clin Gastroenterol Hepatol* **18**, 2752-2759.e2752, doi:10.1016/j.cgh.2019.10.009 (2020).
- 52 Larson, E. Community factors in the development of antibiotic resistance. *Annu Rev Public Health* **28**, 435-447, doi:10.1146/annurev.publhealth.28.021406.144020 (2007).
- 53 Moschos, S. J. & Mantzoros, C. S. The role of the IGF system in cancer: from basic to clinical studies and clinical applications. *Oncology* **63**, 317-332, doi:10.1159/000066230 (2002).
- 54 Aykan, N. F. Red Meat and Colorectal Cancer. *Oncol Rev* **9**, 288, doi:10.4081/oncol.2015.288 (2015).
- 55 Bradbury, K. E., Murphy, N. & Key, T. J. Diet and colorectal cancer in UK Biobank: a prospective study. *Int J Epidemiol* **49**, 246-258, doi:10.1093/ije/dyz064 (2020).
- 56 Crosara Teixeira, M., Braghiroli, M. I., Sabbaga, J. & Hoff, P. M. Primary prevention of colorectal cancer: myth or reality? *World J Gastroenterol* **20**, 15060-15069, doi:10.3748/wjg.v20.i41.15060 (2014).
- 57 Ji, J., Sundquist, J. & Sundquist, K. Use of hormone replacement therapy improves the prognosis in patients with colorectal cancer: A population-based study in Sweden. *Int J Cancer* **142**, 2003-2010, doi:10.1002/ijc.31228 (2018).
- 58 Botteri, E. *et al.* Menopausal hormone therapy and colorectal cancer: a linkage between nationwide registries in Norway. *BMJ Open* **7**, e017639, doi:10.1136/bmjopen-2017-017639 (2017).
- 59 Xie, Y. H., Chen, Y. X. & Fang, J. Y. Comprehensive review of targeted therapy for colorectal cancer. *Signal Transduct Target Ther* **5**, 22, doi:10.1038/s41392-020-0116-z (2020).
- 60 Hasbullah, H. H. & Musa, M. Gene Therapy Targeting p53 and KRAS for Colorectal Cancer Treatment: A Myth or the Way Forward? *Int J Mol Sci* **22**, doi:10.3390/ijms222111941 (2021).
- 61 Zahavi, D. & Weiner, L. Monoclonal antibodies in cancer therapy. *Antibodies* **9**, 34 (2020).
- 62 Almeida, A. *et al.* A new genomic blueprint of the human gut microbiota. *Nature* **568**, 499-504, doi:10.1038/s41586-019-0965-1 (2019).
- 63 Tang, Q. *et al.* Current Sampling Methods for Gut Microbiota: A Call for More Precise Devices. *Frontiers in Cellular and Infection Microbiology* **10**, doi:10.3389/fcimb.2020.00151 (2020).
- 64 Gao, R., Gao, Z., Huang, L. & Qin, H. Gut microbiota and colorectal cancer. *Eur J Clin Microbiol Infect Dis* **36**, 757-769, doi:10.1007/s10096-016-2881-8 (2017).
- 65 Chung, H. *et al.* Gut immune maturation depends on colonization with a host-specific microbiota. *Cell* **149**, 1578-1593, doi:10.1016/j.cell.2012.04.037 (2012).
- 66 Tilg, H., Adolph, T. E., Gerner, R. R. & Moschen, A. R. The Intestinal Microbiota in Colorectal Cancer. *Cancer Cell* **33**, 954-964, doi:<https://doi.org/10.1016/j.ccell.2018.03.004> (2018).
- 67 Gagnière, J. *et al.* Gut microbiota imbalance and colorectal cancer. *World J Gastroenterol* **22**, 501-518, doi:10.3748/wjg.v22.i2.501 (2016).
- 68 Chen, W., Liu, F., Ling, Z., Tong, X. & Xiang, C. Human intestinal lumen and mucosa-associated microbiota in patients with colorectal cancer. *PLoS One* **7**, e39743, doi:10.1371/journal.pone.0039743 (2012).
- 69 Arthur, J. C. *et al.* Intestinal inflammation targets cancer-inducing activity of the microbiota. *Science* **338**, 120-123, doi:10.1126/science.1224820 (2012).
- 70 Bonnet, M. *et al.* Colonization of the human gut by *E. coli* and colorectal cancer risk. *Clin Cancer Res* **20**, 859-867, doi:10.1158/1078-0432.Ccr-13-1343 (2014).

- 71 Kohoutova, D. *et al.* Escherichia coli strains of phylogenetic group B2 and D and bacteriocin production are associated with advanced colorectal neoplasia. *BMC Infect Dis* **14**, 733, doi:10.1186/s12879-014-0733-7 (2014).
- 72 Feng, Q. *et al.* Gut microbiome development along the colorectal adenoma-carcinoma sequence. *Nat Commun* **6**, 6528, doi:10.1038/ncomms7528 (2015).
- 73 Nakatsu, G. *et al.* Gut mucosal microbiome across stages of colorectal carcinogenesis. *Nat Commun* **6**, 8727, doi:10.1038/ncomms9727 (2015).
- 74 Ito, M. *et al.* Association of Fusobacterium nucleatum with clinical and molecular features in colorectal serrated pathway. *Int J Cancer* **137**, 1258-1268, doi:10.1002/ijc.29488 (2015).
- 75 Flemer, B. *et al.* Tumour-associated and non-tumour-associated microbiota in colorectal cancer. *Gut* **66**, 633-643, doi:10.1136/gutjnl-2015-309595 (2017).
- 76 Cheng, Y., Ling, Z. & Li, L. The Intestinal Microbiota and Colorectal Cancer. *Frontiers in Immunology* **11**, doi:10.3389/fimmu.2020.615056 (2020).
- 77 Castellarin, M. *et al.* Fusobacterium nucleatum infection is prevalent in human colorectal carcinoma. *Genome Res* **22**, 299-306, doi:10.1101/gr.126516.111 (2012).
- 78 Ohkusa, T. *et al.* Induction of experimental ulcerative colitis by Fusobacterium varium isolated from colonic mucosa of patients with ulcerative colitis. *Gut* **52**, 79-83, doi:10.1136/gut.52.1.79 (2003).
- 79 Momen-Heravi, F. *et al.* Periodontal disease, tooth loss and colorectal cancer risk: Results from the Nurses' Health Study. *Int J Cancer* **140**, 646-652, doi:10.1002/ijc.30486 (2017).
- 80 Flanagan, L. *et al.* Fusobacterium nucleatum associates with stages of colorectal neoplasia development, colorectal cancer and disease outcome. *Eur J Clin Microbiol Infect Dis* **33**, 1381-1390, doi:10.1007/s10096-014-2081-3 (2014).
- 81 Mima, K. *et al.* Fusobacterium nucleatum in colorectal carcinoma tissue and patient prognosis. *Gut* **65**, 1973-1980, doi:10.1136/gutjnl-2015-310101 (2016).
- 82 Noshu, K. *et al.* Association of Fusobacterium nucleatum with immunity and molecular alterations in colorectal cancer. *World J Gastroenterol* **22**, 557-566, doi:10.3748/wjg.v22.i2.557 (2016).
- 83 Mima, K. *et al.* Fusobacterium nucleatum and T Cells in Colorectal Carcinoma. *JAMA Oncol* **1**, 653-661, doi:10.1001/jamaoncol.2015.1377 (2015).
- 84 Yu, T. *et al.* Fusobacterium nucleatum Promotes Chemoresistance to Colorectal Cancer by Modulating Autophagy. *Cell* **170**, 548-563.e516, doi:10.1016/j.cell.2017.07.008 (2017).
- 85 Bullman, S. *et al.* Analysis of Fusobacterium persistence and antibiotic response in colorectal cancer. *Science* **358**, 1443-1448, doi:10.1126/science.aal5240 (2017).
- 86 Gur, C. *et al.* Binding of the Fap2 protein of Fusobacterium nucleatum to human inhibitory receptor TIGIT protects tumors from immune cell attack. *Immunity* **42**, 344-355, doi:10.1016/j.immuni.2015.01.010 (2015).
- 87 Yang, Y. *et al.* Fusobacterium nucleatum Increases Proliferation of Colorectal Cancer Cells and Tumor Development in Mice by Activating Toll-Like Receptor 4 Signaling to Nuclear Factor- $\kappa$ B, and Up-regulating Expression of MicroRNA-21. *Gastroenterology* **152**, 851-866.e824, doi:10.1053/j.gastro.2016.11.018 (2017).
- 88 Rubinstein, M. R. *et al.* Fusobacterium nucleatum promotes colorectal carcinogenesis by modulating E-cadherin/ $\beta$ -catenin signaling via its FadA adhesin. *Cell Host Microbe* **14**, 195-206, doi:10.1016/j.chom.2013.07.012 (2013).
- 89 Kostic, A. D. *et al.* Fusobacterium nucleatum potentiates intestinal tumorigenesis and modulates the tumor-immune microenvironment. *Cell Host Microbe* **14**, 207-215, doi:10.1016/j.chom.2013.07.007 (2013).

- 90 Denizot, J. *et al.* Diet-induced hypoxia responsive element demethylation increases CEACAM6 expression, favouring Crohn's disease-associated *Escherichia coli* colonisation. *Gut* **64**, 428-437, doi:10.1136/gutjnl-2014-306944 (2015).
- 91 Agus, A. *et al.* Western diet induces a shift in microbiota composition enhancing susceptibility to Adherent-Invasive *E. coli* infection and intestinal inflammation. *Sci Rep* **6**, 19032, doi:10.1038/srep19032 (2016).
- 92 Veziant, J. *et al.* Association of colorectal cancer with pathogenic *Escherichia coli*: Focus on mechanisms using optical imaging. *World J Clin Oncol* **7**, 293-301, doi:10.5306/wjco.v7.i3.293 (2016).
- 93 Arthur, J. C. *et al.* Microbial genomic analysis reveals the essential role of inflammation in bacteria-induced colorectal cancer. *Nat Commun* **5**, 4724, doi:10.1038/ncomms5724 (2014).
- 94 Cuevas-Ramos, G. *et al.* *Escherichia coli* induces DNA damage in vivo and triggers genomic instability in mammalian cells. *Proc Natl Acad Sci U S A* **107**, 11537-11542, doi:10.1073/pnas.1001261107 (2010).
- 95 Cougnoux, A. *et al.* Bacterial genotoxin colibactin promotes colon tumour growth by inducing a senescence-associated secretory phenotype. *Gut* **63**, 1932-1942, doi:10.1136/gutjnl-2013-305257 (2014).
- 96 Cougnoux, A. *et al.* Small-molecule inhibitors prevent the genotoxic and protumoural effects induced by colibactin-producing bacteria. *Gut* **65**, 278-285, doi:10.1136/gutjnl-2014-307241 (2016).
- 97 Sears, C. L., Geis, A. L. & Housseau, F. *Bacteroides fragilis* subverts mucosal biology: from symbiont to colon carcinogenesis. *J Clin Invest* **124**, 4166-4172, doi:10.1172/jci72334 (2014).
- 98 Boleij, A. *et al.* The *Bacteroides fragilis* toxin gene is prevalent in the colon mucosa of colorectal cancer patients. *Clin Infect Dis* **60**, 208-215, doi:10.1093/cid/ciu787 (2015).
- 99 DeStefano Shields, C. E. *et al.* Reduction of Murine Colon Tumorigenesis Driven by Enterotoxigenic *Bacteroides fragilis* Using Cefoxitin Treatment. *J Infect Dis* **214**, 122-129, doi:10.1093/infdis/jiw069 (2016).
- 100 Goodwin, A. C. *et al.* Polyamine catabolism contributes to enterotoxigenic *Bacteroides fragilis*-induced colon tumorigenesis. *Proc Natl Acad Sci U S A* **108**, 15354-15359, doi:10.1073/pnas.1010203108 (2011).
- 101 Boleij, A., van Gelder, M. M., Swinkels, D. W. & Tjalsma, H. Clinical Importance of *Streptococcus gallolyticus* infection among colorectal cancer patients: systematic review and meta-analysis. *Clin Infect Dis* **53**, 870-878, doi:10.1093/cid/cir609 (2011).
- 102 Balamurugan, R., Rajendiran, E., George, S., Samuel, G. V. & Ramakrishna, B. S. Real-time polymerase chain reaction quantification of specific butyrate-producing bacteria, *Desulfovibrio* and *Enterococcus faecalis* in the feces of patients with colorectal cancer. *J Gastroenterol Hepatol* **23**, 1298-1303, doi:10.1111/j.1440-1746.2008.05490.x (2008).
- 103 Long, X. *et al.* *Peptostreptococcus anaerobius* promotes colorectal carcinogenesis and modulates tumour immunity. *Nat Microbiol* **4**, 2319-2330, doi:10.1038/s41564-019-0541-3 (2019).
- 104 Kovatcheva-Datchary, P., Tremaroli, V. & Bäckhed, F. in *The Prokaryotes: Human Microbiology* (eds Eugene Rosenberg *et al.*) 3-24 (Springer Berlin Heidelberg, 2013).
- 105 van den Bogert, B., de Vos, W. M., Zoetendal, E. G. & Kleerebezem, M. Microarray analysis and barcoded pyrosequencing provide consistent microbial profiles depending on the source of human intestinal samples. *Appl Environ Microbiol* **77**, 2071-2080, doi:10.1128/aem.02477-10 (2011).



- 106 Lepage, P. *et al.* Biodiversity of the mucosa-associated microbiota is stable along  
the distal digestive tract in healthy individuals and patients with IBD. *Inflamm*  
*Bowel Dis* **11**, 473-480, doi:10.1097/01.mib.0000159662.62651.06 (2005).
- 107 Zoetendal, E. G. *et al.* The human small intestinal microbiota is driven by rapid  
uptake and conversion of simple carbohydrates. *The ISME Journal* **6**, 1415-1426,  
doi:10.1038/ismej.2011.212 (2012).
- 108 Thomas, V., Clark, J. & Doré, J. Fecal microbiota analysis: an overview of sample  
collection methods and sequencing strategies. *Future Microbiol* **10**, 1485-1504,  
doi:10.2217/fmb.15.87 (2015).
- 109 Wu, G. D. *et al.* Sampling and pyrosequencing methods for characterizing bacterial  
communities in the human gut using 16S sequence tags. *BMC Microbiology* **10**,  
206, doi:10.1186/1471-2180-10-206 (2010).
- 110 Fouhy, F. *et al.* The Effects of Freezing on Faecal Microbiota as Determined Using  
MiSeq Sequencing and Culture-Based Investigations. *PLOS ONE* **10**, e0119355,  
doi:10.1371/journal.pone.0119355 (2015).
- 111 Cardona, S. *et al.* Storage conditions of intestinal microbiota matter in  
metagenomic analysis. *BMC Microbiology* **12**, 158, doi:10.1186/1471-2180-12-  
158 (2012).
- 112 Chen, J. & Huang, X. F. The signal pathways in azoxymethane-induced colon  
cancer and preventive implications. *Cancer Biol Ther* **8**, 1313-1317,  
doi:10.4161/cbt.8.14.8983 (2009).
- 113 Meng, M. *et al.* The current understanding on the impact of KRAS on colorectal  
cancer. *Biomed Pharmacother* **140**, 111717, doi:10.1016/j.biopha.2021.111717  
(2021).
- 114 Wang, X. W. & Zhang, Y. J. Targeting mTOR network in colorectal cancer  
therapy. *World J Gastroenterol* **20**, 4178-4188, doi:10.3748/wjg.v20.i15.4178  
(2014).
- 115 Banerjee, N., Kim, H., Talcott, S. & Mertens-Talcott, S. Pomegranate  
polyphenolics suppressed azoxymethane-induced colorectal aberrant crypt foci and  
inflammation: possible role of miR-126/VCAM-1 and miR-  
126/PI3K/AKT/mTOR. *Carcinogenesis* **34**, 2814-2822,  
doi:10.1093/carcin/bgt295 (2013).
- 116 Bian, J., Dannappel, M., Wan, C. & Firestein, R. Transcriptional Regulation of  
Wnt/ $\beta$ -Catenin Pathway in Colorectal Cancer. *Cells* **9**, 2125 (2020).
- 117 Bhattacharya, I., Barman, N., Maiti, M. & Sarkar, R. Assessment of beta-catenin  
expression by immunohistochemistry in colorectal neoplasms and its role as an  
additional prognostic marker in colorectal adenocarcinoma. *Med Pharm Rep* **92**,  
246-252, doi:10.15386/mpr-1218 (2019).
- 118 Itatani, Y., Kawada, K. & Sakai, Y. Transforming Growth Factor- $\beta$  Signaling  
Pathway in Colorectal Cancer and Its Tumor Microenvironment. *Int J Mol Sci* **20**,  
doi:10.3390/ijms20235822 (2019).
- 119 Makkar, S. *et al.* Hyaluronic Acid Binding to TLR4 Promotes Proliferation and  
Blocks Apoptosis in Colon Cancer. *Molecular Cancer Therapeutics*,  
doi:10.1158/1535-7163.mct-18-1225 (2019).
- 120 Li, C., Lau, H. C.-H., Zhang, X. & Yu, J. Mouse Models for Application in  
Colorectal Cancer: Understanding the Pathogenesis and Relevance to the Human  
Condition. *Biomedicines* **10**, 1710 (2022).
- 121 Neufert, C., Becker, C. & Neurath, M. F. An inducible mouse model of colon  
carcinogenesis for the analysis of sporadic and inflammation-driven tumor  
progression. *Nat Protoc* **2**, 1998-2004, doi:10.1038/nprot.2007.279 (2007).
- 122 Guda, K. *et al.* Multistage gene expression profiling in a differentially susceptible  
mouse colon cancer model. *Cancer letters* **191**, 17-25 (2003).

- 123 Rosenberg, D. W., Giardina, C. & Tanaka, T. Mouse models for the study of colon  
carcinogenesis. *Carcinogenesis* **30**, 183-196 (2009).
- 124 Qin, C., Malykhina, A. P., Akbarali, H. I., Meerveld, B. G. V. & Foreman, R. D.  
Acute Colitis Enhances Responsiveness of Lumbosacral Spinal Neurons to  
Colorectal Distension in Rats. *Digestive Diseases and Sciences*,  
doi:10.1007/s10620-007-9835-z (2007).
- 125 Okamura, M., Yoh, K., Ojima, M., Morito, N. & Takahashi, S. Overexpression of  
GATA-3 in T Cells Accelerates Dextran Sulfate Sodium-Induced Colitis.  
*Experimental Animals*, doi:10.1538/expanim.63.133 (2014).
- 126 Yamada. Chemopreventive Effect of Fermented Brown Rice and Rice Bran  
(FBRA) on the Inflammation-Related Colorectal Carcinogenesis in ApcMin/+  
Mice. *Oncology Reports*, doi:10.3892/or\_00000605 (2009).
- 127 Perše, M. & Cerar, A. Dextran Sodium Sulphate Colitis Mouse Model: Traps and  
Tricks. *Journal of Biomedicine and Biotechnology*, doi:10.1155/2012/718617  
(2012).
- 128 Yang, X. *et al.* Purple Yam Polyphenol Extracts Exert Anticolitis and Anticolitis-  
Associated Colorectal Cancer Effects Through Inactivation of NF- $\kappa$ B/p65 and  
STAT3 Signaling Pathways. *Journal of Agricultural and Food Chemistry*,  
doi:10.1021/acs.jafc.3c00346 (2023).
- 129 Aldini, R. *et al.* Antiinflammatory Effect of Phytosterols in Experimental Murine  
Colitis Model: Prevention, Induction, Remission Study. *Plos One*,  
doi:10.1371/journal.pone.0108112 (2014).
- 130 Kodama, T. *et al.* Fecal microRNA223 as an Indicator of Recovery in Chronic DSS  
Colitis Model in Rats. *Fundamental Toxicological Sciences*, doi:10.2131/fts.9.103  
(2022).
- 131 Kawaguchi, M. *et al.* Ghrelin Administration Suppresses Inflammation-associated  
Colorectal Carcinogenesis in Mice. *Cancer Science*, doi:10.1111/cas.12725  
(2015).
- 132 Akao, T., Oyanagi, Y., Shiotsuki, S., Ikoma, Y. & Sasahara, M. Metabolism of  
Dextran Sulfate Sodium by Intestinal Bacteria in Rat Cecum Is Related to  
Induction of Colitis. *Biological and Pharmaceutical Bulletin*,  
doi:10.1248/bpb.b14-00708 (2015).
- 133 Brown, S. *et al.* Myd88-Dependent Positioning of Ptg2-Expressing Stromal Cells  
Maintains Colonic Epithelial Proliferation During Injury. *Journal of Clinical  
Investigation*, doi:10.1172/jci29159 (2007).
- 134 Radeva, G. *et al.* Regulation of the Oligopeptide Transporter, PEPT-1, in DSS-  
Induced Rat Colitis. *Digestive Diseases and Sciences*, doi:10.1007/s10620-006-  
9667-2 (2007).
- 135 Mähler, M. *et al.* Differential Susceptibility of Inbred Mouse Strains to Dextran  
Sulfate Sodium-Induced Colitis. *Ajp Gastrointestinal and Liver Physiology*,  
doi:10.1152/ajpgi.1998.274.3.g544 (1998).
- 136 Francia, R. D. *et al.* Pharmacogenetic-Based Interactions Between Nutraceuticals  
and Angiogenesis Inhibitors. *Cells*, doi:10.3390/cells8060522 (2019).
- 137 Hui, A. *et al.* Enhancement of Brain-Targeting Delivery of Danshensu in Rat  
Through Conjugation With Pyrazine Moiety to Form Danshensu-Pyrazine Ester.  
*Drug Delivery and Translational Research*, doi:10.1007/s13346-018-0501-0  
(2018).
- 138 Satka, S. *et al.* Effect of DSS-Induced Ulcerative Colitis and Butyrate on the  
Cytochrome P450 2A5: Contribution of the Microbiome. *International Journal of  
Molecular Sciences*, doi:10.3390/ijms231911627 (2022).
- 139 Ying, J. *et al.* Pharmacokinetics Of Active Ingredients of Salvia Miltiorrhiza and  
Carthamus Tinctorius in Compatibility in Normal and Cerebral Ischemia Rats: A



- Comparative Study. *European Journal of Drug Metabolism and Pharmacokinetics*, doi:10.1007/s13318-019-00597-1 (2019).
- 140 Itzkowitz, S. H. & Yio, X. Inflammation and Cancer IV. Colorectal Cancer in Inflammatory Bowel Disease: The Role of Inflammation. *Ajp Gastrointestinal and Liver Physiology*, doi:10.1152/ajpgi.00079.2004 (2004).
- 141 Zuo, B.-W. *et al.* Boris knockout eliminates AOM/DSS-induced in situ colorectal cancer by suppressing DNA damage repair and inflammation. *Cancer Science* **114**, 1972-1985, doi:<https://doi.org/10.1111/cas.15732> (2023).
- 142 Shao, F. *et al.* Sulforaphane Attenuates AOM/DSS-induced Colorectal Tumorigenesis in Mice via Inhibition of Intestinal Inflammation. doi:10.21203/rs.3.rs-2057089/v1 (2022).
- 143 Kim, H.-Y., Song, J. L., Chang, H.-K., Kang, S.-A. & Park, K.-Y. Kimchi Protects Against Azoxymethane/Dextran Sulfate Sodium-Induced Colorectal Carcinogenesis in Mice. *Journal of Medicinal Food*, doi:10.1089/jmf.2013.2986 (2014).
- 144 Bauer, C. *et al.* Colitis induced in mice with dextran sulfate sodium (DSS) is mediated by the NLRP3 inflammasome. *Gut* **59**, 1192-1199, doi:10.1136/gut.2009.197822 (2010).
- 145 Laroui, H. *et al.* Dextran Sodium Sulfate (DSS) Induces Colitis in Mice by Forming Nano-Lipocomplexes With Medium-Chain-Length Fatty Acids in the Colon. *Plos One*, doi:10.1371/journal.pone.0032084 (2012).
- 146 Nagao, K. & Yanagita, T. Medium-Chain Fatty Acids: Functional Lipids for the Prevention and Treatment of the Metabolic Syndrome. *Pharmacological Research*, doi:10.1016/j.phrs.2009.11.007 (2010).
- 147 Page, K. A. *et al.* Medium-Chain Fatty Acids Improve Cognitive Function in Intensively Treated Type 1 Diabetic Patients and Support in Vitro Synaptic Transmission During Acute Hypoglycemia. *Diabetes*, doi:10.2337/db08-1557 (2009).
- 148 Scher, J. U. *et al.* Decreased Bacterial Diversity Characterizes the Altered Gut Microbiota in Patients With Psoriatic Arthritis, Resembling Dysbiosis in Inflammatory Bowel Disease. *Arthritis & Rheumatology*, doi:10.1002/art.38892 (2014).
- 149 Basson, A. R. *et al.* Regulation of Intestinal Inflammation by Dietary Fats. *Frontiers in Immunology*, doi:10.3389/fimmu.2020.604989 (2021).
- 150 Liberato, M. V. *et al.* Medium Chain Fatty Acids Are Selective Peroxisome Proliferator Activated Receptor (PPAR)  $\gamma$  Activators and Pan-Ppar Partial Agonists. *Plos One*, doi:10.1371/journal.pone.0036297 (2012).
- 151 Zhang, Q. *et al.* Accelerated Dysbiosis of Gut Microbiota During Aggravation of DSS-induced Colitis by a Butyrate-Producing Bacterium. *Scientific Reports*, doi:10.1038/srep27572 (2016).
- 152 Zhang, J. *et al.* Vitexin Protects Against Dextran Sodium Sulfate-Induced Colitis in Mice and Its Potential Mechanisms. *Journal of Agricultural and Food Chemistry*, doi:10.1021/acs.jafc.2c05177 (2022).
- 153 Zhang, F. *et al.* HIPK2 Phosphorylates HDAC3 for NF- $\kappa$ B Acetylation to Ameliorate Colitis-Associated Colorectal Carcinoma and Sepsis. *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.2021798118 (2021).
- 154 Bi, Y. *et al.* Aryl hydrocarbon receptor nuclear translocator limits the recruitment and function of regulatory neutrophils against colorectal cancer by regulating the gut microbiota. *J Exp Clin Cancer Res* **42**, 53, doi:10.1186/s13046-023-02627-y (2023).
- 155 Quaglio, A. E. V., Grillo, T. G., De Oliveira, E. C. S., Di Stasi, L. C. & Sasaki, L. Y. Gut microbiota, inflammatory bowel disease and colorectal cancer. *World J Gastroenterol* **28**, 4053-4060, doi:10.3748/wjg.v28.i30.4053 (2022).

- 156 Ye, J. *et al.* Role of gut microbiota in the pathogenesis and treatment of diabetes mellitus: Advanced research-based review. *Front Microbiol* **13**, 1029890, doi:10.3389/fmicb.2022.1029890 (2022).
- 157 Pizzorno, J. E. & Murray, M. T. *Textbook of natural medicine*. 4th ed edn, (Elsevier/Churchill Livingstone St. Louis, Mo., 2013).
- 158 Dunne, C. *et al.* In vitro selection criteria for probiotic bacteria of human origin: correlation with in vivo findings. *Am J Clin Nutr* **73**, 386s-392s, doi:10.1093/ajcn/73.2.386s (2001).
- 159 Fuller, R. Probiotics in human medicine. *Gut* **32**, 439-442, doi:10.1136/gut.32.4.439 (1991).
- 160 Fuller, R. & Gibson, G. R. Modification of the intestinal microflora using probiotics and prebiotics. *Scand J Gastroenterol Suppl* **222**, 28-31, doi:10.1080/00365521.1997.11720714 (1997).
- 161 Mack, D. R., Michail, S., Wei, S., McDougall, L. & Hollingsworth, M. A. Probiotics inhibit enteropathogenic E. coli adherence in vitro by inducing intestinal mucin gene expression. *Am J Physiol* **276**, G941-950, doi:10.1152/ajpgi.1999.276.4.G941 (1999).
- 162 Wilson, K. H. & Perini, F. Role of competition for nutrients in suppression of *Clostridium difficile* by the colonic microflora. *Infect Immun* **56**, 2610-2614, doi:10.1128/iai.56.10.2610-2614.1988 (1988).
- 163 Rolfe, R. D. The role of probiotic cultures in the control of gastrointestinal health. *J Nutr* **130**, 396s-402s, doi:10.1093/jn/130.2.396S (2000).
- 164 Juven, B. J., Meinersmann, R. J. & Stern, N. J. Antagonistic effects of lactobacilli and pediococci to control intestinal colonization by human enteropathogens in live poultry. *J Appl Bacteriol* **70**, 95-103, doi:10.1111/j.1365-2672.1991.tb04433.x (1991).
- 165 Mishra, C. & Lambert, J. Production of anti-microbial substances by probiotics. *Asia Pac J Clin Nutr* **5**, 20-24 (1996).
- 166 Link-Amster, H., Rochat, F., Saudan, K. Y., Mignot, O. & Aeschlimann, J. M. Modulation of a specific humoral immune response and changes in intestinal flora mediated through fermented milk intake. *FEMS Immunol Med Microbiol* **10**, 55-63, doi:10.1111/j.1574-695X.1994.tb00011.x (1994).
- 167 Schiffrin, E. J., Rochat, F., Link-Amster, H., Aeschlimann, J. M. & Donnet-Hughes, A. Immunomodulation of human blood cells following the ingestion of lactic acid bacteria. *J Dairy Sci* **78**, 491-497, doi:10.3168/jds.S0022-0302(95)76659-0 (1995).
- 168 Khalighi, A., Behdani, R. & Kouhestani, S. (2016).
- 169 Wilkins, T. & Sequoia, J. Probiotics for gastrointestinal conditions: a summary of the evidence. *American family physician* **96**, 170-178 (2017).
- 170 Goldstein, E. J., Tyrrell, K. L. & Citron, D. M. Lactobacillus species: taxonomic complexity and controversial susceptibilities. *Clinical Infectious Diseases* **60**, S98-S107 (2015).
- 171 Danilenko, V. *et al.* Common inflammatory mechanisms in COVID-19 and Parkinson's diseases: The role of microbiome, pharmabiotics and postbiotics in their prevention. *Journal of Inflammation Research* **14**, 6349 (2021).
- 172 María Remes-Troche, J. *et al.* Lactobacillus acidophilus LB: A useful pharmabiotic for the treatment of digestive disorders. *Therapeutic advances in gastroenterology* **13**, 1756284820971201 (2020).
- 173 Cohen, S. *et al.* Incidence and outcomes of bloodstream infections among hematopoietic cell transplant recipients from species commonly reported to be in over-the-counter probiotic formulations. *Transplant Infectious Disease* **18**, 699-705 (2016).

- 174 Dani, C. *et al.* Lactobacillus sepsis and probiotic therapy in newborns: two new cases and literature review. *American Journal of Perinatology Reports*, e25-e29 (2015).
- 175 Snyderman, D. R. The safety of probiotics. *Clinical infectious diseases* **46**, S104-S111 (2008).
- 176 Doron, S. & Snyderman, D. R. Risk and safety of probiotics. *Clinical Infectious Diseases* **60**, S129-S134 (2015).
- 177 Goldin, B. R., Gualtieri, L. J. & Moore, R. P. The effect of Lactobacillus GG on the initiation and promotion of DMH-induced intestinal tumors in the rat. *Nutr Cancer* **25**, 197-204, doi:10.1080/01635589609514442 (1996).
- 178 McIntosh, G. H., Royle, P. J. & Playne, M. J. A probiotic strain of *L. acidophilus* reduces DMH-induced large intestinal tumors in male Sprague-Dawley rats. *Nutr Cancer* **35**, 153-159, doi:10.1207/s15327914nc352\_9 (1999).
- 179 Mao, Y. *et al.* The effects of Lactobacillus strains and oat fiber on methotrexate-induced enterocolitis in rats. *Gastroenterology* **111**, 334-344, doi:10.1053/gast.1996.v111.pm8690198 (1996).
- 180 Doncheva, N. I., Antov, G. P., Softova, E. B. & Nyagolov, Y. P. Experimental and clinical study on the hypolipidemic and antisclerotic effect of Lactobacillus bulgaricus strain GB N 1 (48). *Nutrition research* **22**, 393-403 (2002).
- 181 Cremonini, F. *et al.* Effect of different probiotic preparations on anti-helicobacter pylori therapy-related side effects: a parallel group, triple blind, placebo-controlled study. *Am J Gastroenterol* **97**, 2744-2749, doi:10.1111/j.1572-0241.2002.07063.x (2002).
- 182 Hoyos, A. B. Reduced incidence of necrotizing enterocolitis associated with enteral administration of Lactobacillus acidophilus and Bifidobacterium infantis to neonates in an intensive care unit. *Int J Infect Dis* **3**, 197-202, doi:10.1016/s1201-9712(99)90024-3 (1999).
- 183 Duc le, H., Hong, H. A., Barbosa, T. M., Henriques, A. O. & Cutting, S. M. Characterization of Bacillus probiotics available for human use. *Appl Environ Microbiol* **70**, 2161-2171, doi:10.1128/aem.70.4.2161-2171.2004 (2004).
- 184 Velraeds, M. M., van der Mei, H. C., Reid, G. & Busscher, H. J. Inhibition of initial adhesion of uropathogenic Enterococcus faecalis by biosurfactants from Lactobacillus isolates. *Appl Environ Microbiol* **62**, 1958-1963, doi:10.1128/aem.62.6.1958-1963.1996 (1996).
- 185 Hyronimus, B., Le Marrec, C. & Urdaci, M. C. Coagulin, a bacteriocin-like inhibitory substance produced by Bacillus coagulans I4. *J Appl Microbiol* **85**, 42-50, doi:10.1046/j.1365-2672.1998.00466.x (1998).
- 186 Buts, J.-P. Lyophilized Saccharomyces boulardii: example of a probiotic medicine. *Revista de gastroenterologia del Peru: organo oficial de la Sociedad de Gastroenterologia del Peru* **25**, 176-188 (2005).
- 187 Fietto, J. L. *et al.* Molecular and physiological comparisons between Saccharomyces cerevisiae and Saccharomyces boulardii. *Canadian journal of microbiology* **50**, 615-621 (2004).
- 188 Posteraro, B. *et al.* Molecular tools for differentiating probiotic and clinical strains of Saccharomyces cerevisiae. *International journal of food microbiology* **103**, 295-304 (2005).
- 189 Dzutsev, A., Goldszmid, R. S., Viaud, S., Zitvogel, L. & Trinchieri, G. The role of the microbiota in inflammation, carcinogenesis, and cancer therapy. *Eur J Immunol* **45**, 17-31, doi:10.1002/eji.201444972 (2015).
- 190 Wong, S. H. *et al.* Gavage of Fecal Samples From Patients With Colorectal Cancer Promotes Intestinal Carcinogenesis in Germ-Free and Conventional Mice. *Gastroenterology* **153**, 1621-1633.e1626, doi:10.1053/j.gastro.2017.08.022 (2017).



- 191 De Almeida, C. V., de Camargo, M. R., Russo, E. & Amedei, A. Role of diet and  
gut microbiota on colorectal cancer immunomodulation. *World J Gastroenterol* **25**,  
151-162, doi:10.3748/wjg.v25.i2.151 (2019).
- 192 Vivarelli, S. *et al.* Gut Microbiota and Cancer: From Pathogenesis to Therapy.  
*Cancers (Basel)* **11**, doi:10.3390/cancers11010038 (2019).
- 193 Shanshal, S. *et al.* Impact of peptic ulcer disease on the quality of life: A Cross  
Sectional Study. *Research Journal of Pharmacy and Technology*,  
doi:10.52711/0974-360X.2022.00548 (2022).
- 194 Sivamaruthi, B. S., Kesika, P. & Chaiyasut, C. The Role of Probiotics in Colorectal  
Cancer Management. *Evid Based Complement Alternat Med* **2020**, 3535982,  
doi:10.1155/2020/3535982 (2020).
- 195 Lu, K., Dong, S., Wu, X., Jin, R. & Chen, H. Probiotics in Cancer. *Front Oncol*  
**11**, 638148, doi:10.3389/fonc.2021.638148 (2021).
- 196 Lucas, C., Barnich, N. & Nguyen, H. T. T. Microbiota, Inflammation and  
Colorectal Cancer. *Int J Mol Sci* **18**, doi:10.3390/ijms18061310 (2017).
- 197 Fijan, S. Microorganisms with claimed probiotic properties: an overview of recent  
literature. *Int J Environ Res Public Health* **11**, 4745-4767,  
doi:10.3390/ijerph110504745 (2014).
- 198 Kahouli, I., Tomaro-Duchesneau, C. & Prakash, S. Probiotics in colorectal cancer  
(CRC) with emphasis on mechanisms of action and current perspectives. *J Med  
Microbiol* **62**, 1107-1123, doi:10.1099/jmm.0.048975-0 (2013).
- 199 Rao, R. K. & Samak, G. Protection and Restitution of Gut Barrier by Probiotics:  
Nutritional and Clinical Implications. *Curr Nutr Food Sci* **9**, 99-107,  
doi:10.2174/1573401311309020004 (2013).
- 200 Hsieh, C. Y. *et al.* Strengthening of the intestinal epithelial tight junction by  
*Bifidobacterium bifidum*. *Physiol Rep* **3**, doi:10.14814/phy2.12327 (2015).
- 201 Blackwood, B. P. *et al.* Probiotic *Lactobacillus* Species Strengthen Intestinal  
Barrier Function and Tight Junction Integrity in Experimental Necrotizing  
Enterocolitis. *J Probiotics Health* **5**, doi:10.4172/2329-8901.1000159 (2017).
- 202 Dos Reis, S. A. *et al.* Review of the mechanisms of probiotic actions in the  
prevention of colorectal cancer. *Nutr Res* **37**, 1-19,  
doi:10.1016/j.nutres.2016.11.009 (2017).
- 203 Morrison, D. J. & Preston, T. Formation of short chain fatty acids by the gut  
microbiota and their impact on human metabolism. *Gut Microbes* **7**, 189-200,  
doi:10.1080/19490976.2015.1134082 (2016).
- 204 Bassaganya-Riera, J. *et al.* Probiotic bacteria produce conjugated linoleic acid  
locally in the gut that targets macrophage PPAR  $\gamma$  to suppress colitis. *PLoS One* **7**,  
e31238, doi:10.1371/journal.pone.0031238 (2012).
- 205 Uccello, M. *et al.* Potential role of probiotics on colorectal cancer prevention. *BMC  
Surg* **12 Suppl 1**, S35, doi:10.1186/1471-2482-12-s1-s35 (2012).
- 206 Wang, Y. *et al.* Antioxidant Properties of Probiotic Bacteria. *Nutrients* **9**,  
doi:10.3390/nu9050521 (2017).
- 207 Lan, A., Lagadic-Gossmann, D., Lemaire, C., Brenner, C. & Jan, G. Acidic  
extracellular pH shifts colorectal cancer cell death from apoptosis to necrosis upon  
exposure to propionate and acetate, major end-products of the human probiotic  
propionibacteria. *Apoptosis* **12**, 573-591, doi:10.1007/s10495-006-0010-3 (2007).
- 208 Ashraf, R., Vasiljevic, T., Day, S. L., Smith, S. & Donkor, O. Lactic acid bacteria  
and probiotic organisms induce different cytokine profile and regulatory T cells  
mechanisms. *Journal of Functional Foods* **6**, doi:10.1016/j.jff.2013.11.006 (2013).
- 209 de Vos, W. M. & de Vos, E. A. Role of the intestinal microbiome in health and  
disease: from correlation to causation. *Nutr Rev* **70 Suppl 1**, S45-56,  
doi:10.1111/j.1753-4887.2012.00505.x (2012).

- 210 Parker, E. A., Roy, T., D'Adamo, C. R. & Wieland, L. S. Probiotics and  
gastrointestinal conditions: An overview of evidence from the Cochrane  
Collaboration. *Nutrition* **45**, 125-134.e111, doi:10.1016/j.nut.2017.06.024 (2018).
- 211 Sanders, M. E. Probiotics: definition, sources, selection, and uses. *Clin Infect Dis*  
**46 Suppl 2**, S58-61; discussion S144-151, doi:10.1086/523341 (2008).
- 212 Henker, J. *et al.* The probiotic *Escherichia coli* strain Nissle 1917 (EcN) stops acute  
diarrhoea in infants and toddlers. *Eur J Pediatr* **166**, 311-318, doi:10.1007/s00431-  
007-0419-x (2007).
- 213 Malchow, H. A. Crohn's disease and *Escherichia coli*. A new approach in therapy  
to maintain remission of colonic Crohn's disease? *J Clin Gastroenterol* **25**, 653-  
658, doi:10.1097/00004836-199712000-00021 (1997).
- 214 Kligler, B. & Cohrsen, A. Probiotics. *Am Fam Physician* **78**, 1073-1078 (2008).
- 215 Hu, Y. *et al.* The Bidirectional Interactions between Resveratrol and Gut  
Microbiota: An Insight into Oxidative Stress and Inflammatory Bowel Disease  
Therapy. *Biomed Res Int* **2019**, 5403761, doi:10.1155/2019/5403761 (2019).
- 216 Mercier-Bonin, M. & Chapot-Chartier, M. P. Surface Proteins of *Lactococcus*  
*lactis*: Bacterial Resources for Muco-adhesion in the Gastrointestinal Tract. *Front*  
*Microbiol* **8**, 2247, doi:10.3389/fmicb.2017.02247 (2017).
- 217 Yam, K. K. *et al.* Generation and evaluation of A2-expressing *Lactococcus lactis*  
live vaccines against *Leishmania donovani* in BALB/c mice. *J Med Microbiol* **60**,  
1248-1260, doi:10.1099/jmm.0.029959-0 (2011).
- 218 Carvalho, R. D. O. *et al.* Use of Wild Type or Recombinant Lactic Acid Bacteria  
as an Alternative Treatment for Gastrointestinal Inflammatory Diseases: A Focus  
on Inflammatory Bowel Diseases and Mucositis. *Front Microbiol* **8**, 800,  
doi:10.3389/fmicb.2017.00800 (2017).
- 219 Vandenbroucke, K. *et al.* Orally administered *L. lactis* secreting an anti-TNF  
Nanobody demonstrate efficacy in chronic colitis. *Mucosal Immunol* **3**, 49-56,  
doi:10.1038/mi.2009.116 (2010).
- 220 Gomes-Santos, A. C. *et al.* Hsp65-Producing *Lactococcus lactis* Prevents  
Inflammatory Intestinal Disease in Mice by IL-10- and TLR2-Dependent  
Pathways. *Front Immunol* **8**, 30, doi:10.3389/fimmu.2017.00030 (2017).
- 221 Li, S. C., Lin, H. P., Chang, J. S. & Shih, C. K. *Lactobacillus Acidophilus*-  
Fermented Germinated Brown Rice Suppresses Preneoplastic Lesions of the Colon  
in Rats. *Nutrients*, doi:10.3390/nu11112718 (2019).
- 222 Cevallos, S. A. *et al.* Increased Epithelial Oxygenation Links Colitis to an  
Expansion of Tumorigenic Bacteria. *Mbio*, doi:10.1128/mbio.02244-19 (2019).
- 223 Wibowo, A. A. *et al.* An Increase in Inflammatory Cells Related to the Increase  
Incidence of Colitis and Colorectal Cancer. *Bali Medical Journal*,  
doi:10.15562/bmj.v11i1.2842 (2022).
- 224 Iamartino, L., Elajnaf, T., Kállay, E. & Schepelmann, M. Calcium-Sensing  
Receptor in Colorectal Inflammation and Cancer: Current Insights and Future  
Perspectives. *World Journal of Gastroenterology*, doi:10.3748/wjg.v24.i36.4119  
(2018).
- 225 Aoki, T. & Narumiya, S. Prostaglandin E2-Ep2 Signaling as a Node of Chronic  
Inflammation in the Colon Tumor Microenvironment. *Inflammation and*  
*Regeneration*, doi:10.1186/s41232-017-0036-7 (2017).
- 226 Liang, X., Li, H., Tian, G. & Li, S. Dynamic Microbe and Molecule Networks in  
a Mouse Model of Colitis-Associated Colorectal Cancer. *Scientific Reports*,  
doi:10.1038/srep04985 (2014).
- 227 Kesselring, R., Jauch, D. & Fichtner-Feigl, S. Interleukin 21 Impairs Tumor  
Immunosurveillance of Colitis-Associated Colorectal Cancer. *Oncimmunology*,  
doi:10.4161/onci.19407 (2012).

- 228 Ida, S. *et al.* SPINK1 Status in Colorectal Cancer, Impact on Proliferation, and Role in Colitis-Associated Cancer. *Molecular Cancer Research*, doi:10.1158/1541-7786.mcr-14-0581 (2015).
- 229 Yamaji, N. *et al.* Hepatocyte Growth Factor Ameliorates Mucosal Injuries Leading to Inhibition of Colon Cancer Development in Mice. *Oncology Reports*, doi:10.3892/or.2011.1294 (2011).
- 230 Hyun, C. K. Molecular and Pathophysiological Links Between Metabolic Disorders and Inflammatory Bowel Diseases. *International Journal of Molecular Sciences*, doi:10.3390/ijms22179139 (2021).
- 231 Luu, M. & Visekruna, A. Short-chain Fatty Acids: Bacterial Messengers Modulating the Immunometabolism of T Cells. *European Journal of Immunology*, doi:10.1002/eji.201848009 (2019).
- 232 Zhang, X. *et al.* Widespread Protein Lysine Acetylation in Gut Microbiome and Its Alterations in Patients With Crohn's Disease. *Nature Communications*, doi:10.1038/s41467-020-17916-9 (2020).
- 233 Sun, M., Wu, W., Liu, Z. & Cong, Y. Microbiota Metabolite Short Chain Fatty Acids, GPCR, and Inflammatory Bowel Diseases. *Journal of Gastroenterology*, doi:10.1007/s00535-016-1242-9 (2016).
- 234 Miyamoto, J. *et al.* Nutritional Signaling via Free Fatty Acid Receptors. *International Journal of Molecular Sciences*, doi:10.3390/ijms17040450 (2016).
- 235 Braat, H. *et al.* A phase I trial with transgenic bacteria expressing interleukin-10 in Crohn's disease. *Clin Gastroenterol Hepatol* **4**, 754-759, doi:10.1016/j.cgh.2006.03.028 (2006).
- 236 Kaczmarek, K., Więckiewicz, J., Węglarczyk, K., Siedlar, M. & Baran, J. The Anti-Tumor Effect of Lactococcus lactis Bacteria-Secreting Human Soluble TRAIL Can Be Enhanced by Metformin Both In Vitro and In Vivo in a Mouse Model of Human Colorectal Cancer. *Cancers (Basel)* **13**, doi:10.3390/cancers13123004 (2021).
- 237 Zahirović, A., Plavec, T. V. & Berlec, A. Dual Functionalized Lactococcus lactis Shows Tumor Antigen Targeting and Cytokine Binding in Vitro. *Front Bioeng Biotechnol* **10**, 822823, doi:10.3389/fbioe.2022.822823 (2022).
- 238 Calle, M. L. Statistical Analysis of Metagenomics Data. *Genomics Inform* **17**, e6, doi:10.5808/GI.2019.17.1.e6 (2019).
- 239 Rausch, P. *et al.* Comparative Analysis of Amplicon and Metagenomic Sequencing Methods Reveals Key Features in the Evolution of Animal Metaorganisms. *Microbiome*, doi:10.1186/s40168-019-0743-1 (2019).
- 240 Zhang, X. *et al.* MetaPro-IQ: A Universal Metaproteomic Approach to Studying Human and Mouse Gut Microbiota. *Microbiome*, doi:10.1186/s40168-016-0176-z (2016).
- 241 Heidrich, V. *et al.* Choice of 16S Ribosomal RNA Primers Impacts Male Urinary Microbiota Profiling. *Frontiers in Cellular and Infection Microbiology*, doi:10.3389/fcimb.2022.862338 (2022).
- 242 Hoffman, C. *et al.* Species-Level Resolution of Female Bladder Microbiota From 16S rRNA Amplicon Sequencing. *Msystems*, doi:10.1128/msystems.00518-21 (2021).
- 243 Höyhty, M. *et al.* Quantitative Fecal Microbiota Profiles Relate to Therapy Response During Induction With Tumor Necrosis Factor A Antagonist Infliximab in Pediatric Inflammatory Bowel Disease. *Inflammatory Bowel Diseases*, doi:10.1093/ibd/izac182 (2022).
- 244 Oliveira, S. S. *et al.* Core of the Saliva Microbiome: An Analysis of the MG-RAST Data. *BMC Oral Health*, doi:10.1186/s12903-021-01719-5 (2021).



- 245 Liu, Y. *et al.* Exploring Gut Microbiota in Patients With Colorectal Disease Based  
on 16S rRNA Gene Amplicon and Shallow Metagenomic Sequencing. *Frontiers  
in Molecular Biosciences*, doi:10.3389/fmolb.2021.703638 (2021).
- 246 Lu, J. *et al.* Neohesperidin Attenuates Obesity by Altering the Composition of the  
Gut Microbiota in High-fat Diet-fed Mice. *The FASEB Journal*,  
doi:10.1096/fj.201903102rr (2020).
- 247 Meng, Z. *et al.* Impacts of Penconazole and Its Enantiomers Exposure on Gut  
Microbiota and Metabolic Profiles in Mice. *Journal of Agricultural and Food  
Chemistry*, doi:10.1021/acs.jafc.9b02856 (2019).
- 248 Zhu, Q. *et al.* OGU's Enable Effective, Phylogeny-Aware Analysis of Even  
Shallow Metagenome Community Structures. doi:10.1101/2021.04.04.438427  
(2021).
- 249 Peterson, D., Bonham, K. S., Rowland, S., Pattanayak, C. W. & Klepac-Ceraj, V.  
Comparative Analysis of 16S rRNA Gene and Metagenome Sequencing in  
Pediatric Gut Microbiomes. doi:10.1101/2021.02.20.432118 (2021).
- 250 He, B. *et al.* Assessing the Impact of Data Preprocessing on Analyzing Next  
Generation Sequencing Data. *Frontiers in Bioengineering and Biotechnology* **8**,  
doi:10.3389/fbioe.2020.00817 (2020).
- 251 Simbolo, M. *et al.* DNA qualification workflow for next generation sequencing of  
histopathological samples. *PLoS One* **8**, e62692,  
doi:10.1371/journal.pone.0062692 (2013).
- 252 Yaman, C. *et al.* Community Structure of Bacteria and Archaea Associated with  
Geotextile Filters in Anaerobic Bioreactor Landfills. *Processes* **9** (2021).
- 253 Rahayu, T. *et al.* Metagenomic data of bacterial 16S rRNA in the cemetery soil  
samples in Surakarta City, Indonesia. *Data in Brief* **52**, 109963,  
doi:<https://doi.org/10.1016/j.dib.2023.109963> (2024).
- 254 Jovel, J. *et al.* Characterization of the Gut Microbiome Using 16S or Shotgun  
Metagenomics. *Frontiers in Microbiology*, doi:10.3389/fmicb.2016.00459 (2016).
- 255 Poretsky, R., Rodriguez-R, L. M., Luo, C., Tsementzi, D. & Konstantinidis, K. T.  
Strengths and Limitations of 16S rRNA Gene Amplicon Sequencing in Revealing  
Temporal Microbial Community Dynamics. *Plos One*,  
doi:10.1371/journal.pone.0093827 (2014).
- 256 Rezasoltani, S. *et al.* Signature of Gut Microbiome by Conventional and Advanced  
Analysis Techniques: Advantages and Disadvantages. *Middle East Journal of  
Digestive Diseases*, doi:10.15171/mejdd.2020.157 (2019).
- 257 Dawson, S. *et al.* Maternal Prenatal Gut Microbiota Composition Predicts Child  
Behaviour. *Ebiomedicine*, doi:10.1016/j.ebiom.2021.103400 (2021).
- 258 Hu, X. *et al.* Intermittent Fasting Modulates the Intestinal Microbiota and Improves  
Obesity and Host Energy Metabolism. *NPJ Biofilms and Microbiomes*,  
doi:10.1038/s41522-023-00386-4 (2023).
- 259 Satoh, S. *et al.* Phylogeny Analysis of Whole Protein-Coding Genes in  
Metagenomic Data Detected an Environmental Gradient for the Microbiota. *Plos  
One*, doi:10.1371/journal.pone.0281288 (2023).
- 260 Al-Musharaf, S. *et al.* Vitamin B12 Status and Gut Microbiota Among Saudi  
Females With Obesity. *Foods*, doi:10.3390/foods11244007 (2022).
- 261 Xy, Z. *et al.* The Role of Feeding Characteristics in Shaping Gut Microbiota  
Composition and Function of Ensifera (Orthoptera). *Insects*,  
doi:10.3390/insects13080719 (2022).
- 262 Sharpton, T. J. An Introduction to the Analysis of Shotgun Metagenomic Data.  
*Frontiers in Plant Science*, doi:10.3389/fpls.2014.00209 (2014).
- 263 Nguyen, N.-P., Warnow, T., Pop, M. & White, B. A perspective on 16S rRNA  
operational taxonomic unit clustering using sequence similarity. *npj Biofilms and  
Microbiomes* **2**, 16004, doi:10.1038/npjbiofilms.2016.4 (2016).

- 264 Gupta, S. *et al.* Amplicon sequencing provides more accurate microbiome  
information in healthy children compared to culturing. *Commun Biol* **2**, 291,  
doi:10.1038/s42003-019-0540-1 (2019).
- 265 Chiarello, M., McCauley, M., Villéger, S. & Jackson, C. R. Ranking the biases:  
The choice of OTUs vs. ASVs in 16S rRNA amplicon data analysis has stronger  
effects on diversity measures than rarefaction and OTU identity threshold. *PLOS*  
*ONE* **17**, e0264443, doi:10.1371/journal.pone.0264443 (2022).
- 266 Zhu, R. *et al.* Comparison of Soil Microbial Community Between Reseeding  
Grassland and Natural Grassland in Songnen Meadow. *Scientific Reports*,  
doi:10.1038/s41598-020-74023-x (2020).
- 267 Shah, N., Meisel, J. S. & Pop, M. Embracing Ambiguity in the Taxonomic  
Classification of Microbiome Sequencing Data. *Frontiers in Genetics*,  
doi:10.3389/fgene.2019.01022 (2019).
- 268 Lie, A. A. Y. *et al.* Investigating Microbial Eukaryotic Diversity From a Global  
Census: Insights From a Comparison of Pyrotag and Full-Length Sequences of 18S  
rRNA Genes. *Applied and Environmental Microbiology*, doi:10.1128/aem.00057-  
14 (2014).
- 269 Li, L. & Sam, Z. Comparative Power Law Analysis for the Spatial Heterogeneity  
Scaling of the Hot-spring Microbiomes. *Molecular Ecology*,  
doi:10.1111/mec.15124 (2019).
- 270 Goldberg, B., Sichtig, H., Geyer, C. N., Ledebøer, N. A. & Weinstock, G. M.  
Making the Leap From Research Laboratory to Clinic: Challenges and  
Opportunities for Next-Generation Sequencing in Infectious Disease Diagnostics.  
*Mbio*, doi:10.1128/mbio.01888-15 (2015).
- 271 Krishna, S. *et al.* Integrating Microbiome Network: Establishing Linkages  
Between Plants, Microbes and Human Health. *The Open Microbiology Journal*,  
doi:10.2174/1874285801913020330 (2019).
- 272 Maki, K. A. *et al.* Considerations When Designing a Microbiome Study:  
Implications for Nursing Science. *Biological Research for Nursing*,  
doi:10.1177/1099800418811639 (2018).
- 273 Nemergut, D. R. *et al.* Patterns and Processes of Microbial Community Assembly.  
*Microbiology and Molecular Biology Reviews*, doi:10.1128/mmbr.00051-12  
(2013).
- 274 Hoorde, K. V. & Butler, F. Use of Next-generation Sequencing in Microbial Risk  
Assessment. *Efsa Journal*, doi:10.2903/j.efsa.2018.e16086 (2018).
- 275 Cabezas-Cruz, A. *et al.* Handling the Microbial Complexity Associated to Ticks.  
doi:10.5772/intechopen.80511 (2019).
- 276 Sung, J. *et al.* Global Metabolic Interaction Network of the Human Gut Microbiota  
for Context-Specific Community-Scale Analysis. *Nature Communications*,  
doi:10.1038/ncomms15393 (2017).
- 277 Carpi, G. *et al.* Metagenomic Profile of the Bacterial Communities Associated  
With Ixodes Ricinus Ticks. *Plos One*, doi:10.1371/journal.pone.0025604 (2011).
- 278 Kuperman, R. G. *et al.* Inhibition of Soil Microbial Activity by Nitrogen-based  
Energetic Materials. *Environmental Toxicology and Chemistry*,  
doi:10.1002/etc.3862 (2017).
- 279 Methé, B. A. *et al.* A Framework for Human Microbiome Research. *Nature*,  
doi:10.1038/nature11209 (2012).
- 280 Huang, H. *et al.* Panoramic View of a Superfamily of Phosphatases Through  
Substrate Profiling. *Proceedings of the National Academy of Sciences*,  
doi:10.1073/pnas.1423570112 (2015).
- 281 Börnigen, D. *et al.* Functional Profiling of the Gut Microbiome in Disease-  
Associated Inflammation. *Genome Medicine*, doi:10.1186/gm469 (2013).

- 282 Fukatsu, T. Next-generation Sequencing Sheds Light on Intricate Regulation of  
Insect Gut Microbiota. *Molecular Ecology*, doi:10.1111/mec.12090 (2012).
- 283 Goll, J. *et al.* A Case Study for Large-Scale Human Microbiome Analysis Using  
JCVI's Metagenomics Reports (METAREP). *Plos One*,  
doi:10.1371/journal.pone.0029044 (2012).
- 284 McIlroy, J., Ianiro, G., Mukhopadhyaya, I., Hansen, R. & Hold, G. L. Review article:  
the gut microbiome in inflammatory bowel disease-avenues for microbial  
management. *Aliment Pharmacol Ther* **47**, 26-42, doi:10.1111/apt.14384 (2018).
- 285 Tarnecki, A. M., Burgos, F. A., Ray, C. L. & Arias, C. R. Fish intestinal  
microbiome: diversity and symbiosis unravelled by metagenomics. *J Appl  
Microbiol* **123**, 2-17, doi:10.1111/jam.13415 (2017).
- 286 Salimi, A. *et al.* Dynamic Population of Gut Microbiota as an Indicator of  
Inflammatory Bowel Disease. *Iran Biomed J* **26**, 350-356, doi:10.52547/ibj.3772  
(2022).
- 287 Cholewińska, P. *et al.* The Level of Selected Bacterial Phyla on the Skin Surface  
of Small Ruminants According to the Breed and Species. *Animals (Basel)* **11**,  
doi:10.3390/ani11092734 (2021).
- 288 Arias-Giraldo, L. M. *et al.* Species-dependent variation of the gut bacterial  
communities across *Trypanosoma cruzi* insect vectors. *PLoS One* **15**, e0240916,  
doi:10.1371/journal.pone.0240916 (2020).
- 289 Shin, N., Whon, T. W. & Bae, J. W. Proteobacteria: Microbial Signature of  
Dysbiosis in Gut Microbiota. *Trends in Biotechnology*,  
doi:10.1016/j.tibtech.2015.06.011 (2015).
- 290 Nadeau, B. A. & Conjeevaram, H. S. The Gut Microbiome and Nonalcoholic Fatty  
Liver Disease. *Clinical Liver Disease*, doi:10.1002/cld.671 (2017).
- 291 Yulandi, A., Waturangi, D. E., Wahyudi, A. T. & Suwanto, A. Shotgun  
Metagenomic Analysis Reveals New Insights on Bacterial Community Profiles in  
Tempeh. doi:10.1101/2020.03.12.988444 (2020).
- 292 Kumar, J. *et al.* Metagenomic Insights Into the Taxonomic and Functional Features  
of Kinema, a Traditional Fermented Soybean Product of Sikkim Himalaya.  
*Frontiers in Microbiology*, doi:10.3389/fmicb.2019.01744 (2019).
- 293 Sokol, H. *et al.* Faecalibacterium prausnitzii is an anti-inflammatory commensal  
bacterium identified by gut microbiota analysis of Crohn disease patients. *Proc  
Natl Acad Sci U S A* **105**, 16731-16736, doi:10.1073/pnas.0804812105 (2008).
- 294 Di Pietro, R., Arroyo, L. G., Leclere, M. & Costa, M. C. Species-Level Gut  
Microbiota Analysis after Antibiotic-Induced Dysbiosis in Horses. *Animals (Basel)*  
**11**, doi:10.3390/ani11102859 (2021).
- 295 He, Q. *et al.* Methyl-Donor Micronutrient for Gestating Sows: Effects on Gut  
Microbiota and Metabolome in Offspring Piglets. *Front Nutr* **8**, 675640,  
doi:10.3389/fnut.2021.675640 (2021).
- 296 Xu, Y. *et al.* The microbiome types of colorectal tissue are potentially associated  
with the prognosis of patients with colorectal cancer. *Front Microbiol* **14**, 1100873,  
doi:10.3389/fmicb.2023.1100873 (2023).
- 297 Naseri, K. *et al.* Alterations in the Composition of the Gut Microbiota in Celiac  
*Disease, Non-Coeliac Gluten Sensitivity and Irritable Bowel Syndrome.* (2021).
- 298 Hegde, S. *et al.* Microbiota dysbiosis and its pathophysiological significance in  
bowel obstruction. *Sci Rep* **8**, 13044, doi:10.1038/s41598-018-31033-0 (2018).
- 299 Tsai, H. J. *et al.* Gut Microbiota and Non-Alcoholic Fatty Liver Disease Severity  
in Type 2 Diabetes Patients. *J Pers Med* **11**, doi:10.3390/jpm11030238 (2021).
- 300 Franco-Esquivias, A. P. *et al.* Gut microbiota in Mexican patients with common  
variable immunodeficiency. *Gac Med Mex* **155**, 447-452,  
doi:10.24875/gmm.M20000330 (2019).



- 301 Zhang, M. *et al.* Effects of Continuous Cropping of Codonopsis Tangshen on Rhizospheric Soil Bacterial Community as Determined by Pyrosequencing. *Diversity*, doi:10.3390/d13070317 (2021).
- 302 Radita, R., Suwanto, A., Kurosawa, N., Wahyudi, A. T. & Rusmana, I. Metagenome Analysis of Tempeh Production: Where Did the Bacterial Community in Tempeh Come From? *Malaysian Journal of Microbiology*, doi:10.21161/mjm.101417 (2017).
- 303 Buffie, C. G. & Pamer, E. G. Microbiota-mediated colonization resistance against intestinal pathogens. *Nature Reviews Immunology* **13**, 790-801, doi:10.1038/nri3535 (2013).
- 304 Xing, C. *et al.* Interaction between microbiota and immunity and its implication in colorectal cancer. *Front Immunol* **13**, 963819, doi:10.3389/fimmu.2022.963819 (2022).
- 305 Pollet, T. V., Tadonlélé, R. D. & Humbert, J. F. Spatiotemporal Changes in the Structure and Composition of a Less-Abundant Bacterial Phylum (Planctomycetes) in Two Perialpine Lakes. *Applied and Environmental Microbiology*, doi:10.1128/aem.02697-10 (2011).
- 306 Zhou, D. *et al.* Deciphering Microbial Diversity Associated With Fusarium Wilt-Diseased and Disease-Free Banana Rhizosphere Soil. *BMC Microbiology*, doi:10.1186/s12866-019-1531-6 (2019).
- 307 Hagerty, S. L., Hutchison, K. E., Lowry, C. A. & Bryan, A. D. An empirically derived method for measuring human gut microbiome alpha diversity: Demonstrated utility in predicting health-related outcomes among a human clinical sample. *PLoS One* **15**, e0229204, doi:10.1371/journal.pone.0229204 (2020).
- 308 Forbes, J. *et al.* A comparative study of the gut microbiota in immune-mediated inflammatory diseases - Does a common dysbiosis exist? *Microbiome* **6**, doi:10.1186/s40168-018-0603-4 (2018).
- 309 Wang, S., Yan, Z., Wang, P., Zheng, X. & Fan, J. Comparative Metagenomics Reveals the Microbial Diversity and Metabolic Potentials in the Sediments and Surrounding Seawaters of Qinhuangdao Mariculture Area. *Plos One*, doi:10.1371/journal.pone.0234128 (2020).
- 310 Sogin, M. L. *et al.* Microbial Diversity in the Deep Sea and the Underexplored "Rare Biosphere". *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.0605127103 (2006).
- 311 Louca, S. *et al.* Function and Functional Redundancy in Microbial Systems. *Nature Ecology & Evolution*, doi:10.1038/s41559-018-0519-1 (2018).
- 312 Delgado-Baquerizo, M. *et al.* A Global Atlas of the Dominant Bacteria Found in Soil. *Science*, doi:10.1126/science.aap9516 (2018).
- 313 Coyte, K. Z., Schluter, J. & Foster, K. R. The Ecology of the Microbiome: Networks, Competition, and Stability. *Science*, doi:10.1126/science.aad2602 (2015).
- 314 Su, X. Elucidating the Beta-Diversity of the Microbiome: from Global Alignment to Local Alignment. *mSystems* **6**, 10.1128/msystems.00363-00321, doi:10.1128/msystems.00363-21 (2021).
- 315 Chang, Q., Luan, Y. & Sun, F. Variance adjusted weighted UniFrac: a powerful beta diversity measure for comparing communities based on phylogeny. *BMC Bioinformatics* **12**, 118, doi:10.1186/1471-2105-12-118 (2011).
- 316 Heino, J., Soininen, J., Alahuhta, J., Lappalainen, J. & Virtanen, R. A Comparative Analysis of Metacommunity Types in the Freshwater Realm. *Ecology and Evolution*, doi:10.1002/ece3.1460 (2015).
- 317 Lee, S. H. *et al.* Association Between Cigarette Smoking Status and Composition of Gut Microbiota: Population-Based Cross-Sectional Study. *Journal of Clinical Medicine*, doi:10.3390/jcm7090282 (2018).

- 318 López-Delgado, E. O., Winemiller, K. O. & Villa-Navarro, F. A. Local  
Environmental Factors Influence Beta-diversity Patterns of Tropical Fish  
Assemblages More Than Spatial Factors. *Ecology*, doi:10.1002/ecy.2940 (2019).
- 319 Sharma, S., Kelly, T. K. & Jones, P. A. Epigenetics in Cancer. *Carcinogenesis*,  
doi:10.1093/carcin/bgp220 (2009).
- 320 Illikoud, N., Mantel, M., Rolli-Derkinderen, M., Gagnaire, V. & Jan, G. Dairy  
starters and fermented dairy products modulate gut mucosal immunity. *Immunol  
Lett* **251-252**, 91-102, doi:10.1016/j.imlet.2022.11.002 (2022).
- 321 Anjana & Tiwari, S. K. Bacteriocin-Producing Probiotic Lactic Acid Bacteria in  
Controlling Dysbiosis of the Gut Microbiota. *Front Cell Infect Microbiol* **12**,  
851140, doi:10.3389/fcimb.2022.851140 (2022).
- 322 Ermolenko, E. *et al.* Influence of different probiotic lactic Acid bacteria on  
microbiota and metabolism of rats with dysbiosis. *Biosci Microbiota Food Health*  
**32**, 41-49, doi:10.12938/bmfh.32.41 (2013).
- 323 Saghari, M. *et al.* Impact of oral administration of single strain *Lactococcus lactis*  
spp. *cremoris* on immune responses to keyhole limpet hemocyanin immunization  
and gut microbiota: A randomized placebo-controlled trial in healthy volunteers.  
*Front Immunol* **13**, 1009304, doi:10.3389/fimmu.2022.1009304 (2022).
- 324 Yang, B. *et al.* *Lactobacillus ruminis* Alleviates DSS-Induced Colitis by  
Inflammatory Cytokines and Gut Microbiota Modulation. *Foods* **10**,  
doi:10.3390/foods10061349 (2021).
- 325 Yeo, S. *et al.* Anti-Inflammatory and Gut Microbiota Modulatory Effect of  
*Lactobacillus rhamnosus* Strain LDTM 7511 in a Dextran Sulfate Sodium-Induced  
Colitis Murine Model. *Microorganisms* **8**, doi:10.3390/microorganisms8060845  
(2020).

