

Das Mikrobiom des Urogenitaltraktes

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Literatur

1. Magistro G, Stief CG. The Urinary Tract Microbiome: The Answer to All Our Open Questions? *Eur Urol Focus*. 2019 Jan;5(1):36-38. doi: 10.1016/j.euf.2018.06.011. Epub 2018 Jul 2. PMID: 30042043
2. Dickson RP, Erb-Downward JR, Martinez FJ, Huffnagle GB. The Microbiome and the Respiratory Tract. *Annu Rev Physiol*. 2016;78:481-504. doi: 10.1146/annurev-physiol-021115-105238. Epub 2015 Nov 2. PMID: 26527186; PMCID: PMC4751994.
3. Polk DB, Peek RM Jr. *Helicobacter pylori*: gastric cancer and beyond. *Nat Rev Cancer*. 2010 Jun;10(6):403-14. doi: 10.1038/nrc2857. Erratum in: *Nat Rev Cancer*. 2010 Aug;10(8):593. PMID: 20495574
4. Cohen RJ, Shannon BA, McNeal JE, Shannon T, Garrett KL. *Propionibacterium acnes* associated with inflammation in radical prostatectomy specimens: a possible link to cancer evolution? *J Urol*. 2005 Jun;173(6):1969-74. doi: 10.1097/01.ju.0000158161.15277.78. PMID: 15879794.
5. Cavarretta I, Ferrarese R, Cazzaniga W, Saita D, Lucianò R, Ceresola ER, Locatelli I, Visconti L, Lavorgna G, Briganti A, Nebuloni M, Doglioni C, Clementi M, Montorsi F, Canducci F, Salonia A. The Microbiome of the Prostate Tumor Microenvironment. *Eur Urol*. 2017 Oct;72(4):625-631. doi: 10.1016/j.eururo.2017.03.029. Epub 2017 Apr 20. PMID: 28434677.
6. Feng Y, Ramnarine VR, Bell R, Volik S, Davicioni E, Hayes VM, Ren S, Collins CC. Metagenomic and metatranscriptomic analysis of human prostate microbiota from patients with prostate cancer. *BMC Genomics*. 2019 Feb 18;20(1):146. doi: 10.1186/s12864-019-5457-z. PMID: 30777011; PMCID: PMC6379980.
7. Banerjee S, Alwine JC, Wei Z, Tian T, Shih N, Sperling C, Guzzo T, Feldman MD, Robertson ES. Microbiome signatures in prostate cancer. *Carcinogenesis*. 2019 Jul 6;40(6):749-764. doi: 10.1093/carcin/bgz008. PMID: 30794288.
8. Miyake M, Ohnishi K, Hori S, Nakano A, Nakano R, Yano H, Ohnishi S, Owari T, Morizawa Y, Itami Y, Nakai Y, Inoue T, Anai S, Torimoto K, Tanaka N, Fujii T, Furuya H, Rosser CJ, Fujimoto K. *Mycoplasma genitalium* Infection and Chronic Inflammation in Human Prostate Cancer: Detection Using Prostatectomy and Needle Biopsy Specimens. *Cells*. 2019 Mar 2;8(3):212. doi: 10.3390/cells8030212. PMID: 30832347; PMCID: PMC6468796
9. Burger M, Catto JW, Dalbagni G, Grossman HB, Herr H, Karakiewicz P, Kassouf W, Kiemeny LA, La Vecchia C, Shariat S, Lotan Y. Epidemiology and risk factors of urothelial bladder cancer. *Eur Urol*. 2013 Feb;63(2):234-41. doi: 10.1016/j.eururo.2012.07.033. Epub 2012 Jul 25. PMID: 22877502.
10. Wu P, Zhang G, Zhao J, Chen J, Chen Y, Huang W, Zhong J, Zeng J. Profiling the Urinary Microbiota in Male Patients With Bladder Cancer in China. *Front Cell Infect Microbiol*. 2018 May 31;8:167. doi: 10.3389/fcimb.2018.00167. Erratum in: *Front Cell Infect Microbiol*. 2018 Dec 11;8:429. PMID: 29904624; PMCID: PMC5990618.
11. Bučević Popović V, Šitum M, Chow CT, Chan LS, Roje B, Terzić J. The urinary microbiome associated with bladder cancer. *Sci Rep*. 2018 Aug 14;8(1):12157. doi: 10.1038/s41598-018-29054-w. PMID: 30108246; PMCID: PMC6092344.

12. Liu F, Liu A, Lu X, Zhang Z, Xue Y, Xu J, Zeng S, Xiong Q, Tan H, He X, Xu W, Sun Y, Xu C. Dysbiosis signatures of the microbial profile in tissue from bladder cancer. *Cancer Med*. 2019 Nov;8(16):6904-6914. doi: 10.1002/cam4.2419. Epub 2019 Sep 30. PMID: 31568654; PMCID: PMC6854010.
13. Mai G, Chen L, Li R, Liu Q, Zhang H, Ma Y. Common Core Bacterial Biomarkers of Bladder Cancer Based on Multiple Datasets. *Biomed Res Int*. 2019 Jun 19;2019:4824909. doi: 10.1155/2019/4824909. PMID: 31321235; PMCID: PMC6607711.
14. Heidler S, Lusuardi L, Madersbacher S, Freibauer C. The Microbiome in Benign Renal Tissue and in Renal Cell Carcinoma. *Urol Int*. 2020;104(3-4):247-252. doi: 10.1159/000504029. Epub 2019 Nov 12. PMID: 31715602.
15. Hahn AW, Froerer C, VanAlstine S, Rathi N, Bailey EB, Stenehjem DD, Agarwal N. Targeting Bacteroides in Stool Microbiome and Response to Treatment With First-Line VEGF Tyrosine Kinase Inhibitors in Metastatic Renal-Cell Carcinoma. *Clin Genitourin Cancer*. 2018 Oct;16(5):365-368. doi: 10.1016/j.clgc.2018.05.001. Epub 2018 May 29. PMID: 29858123.
16. Derosa L, Hellmann MD, Spaziano M, Halpenny D, Fidelle M, Rizvi H, Long N, Plodkowski AJ, Arbour KC, Chaff JE, Rouche JA, Zitvogel L, Zalcman G, Albiges L, Escudier B, Routy B. Negative association of antibiotics on clinical activity of immune checkpoint inhibitors in patients with advanced renal cell and non-small-cell lung cancer. *Ann Oncol*. 2018 Jun 1;29(6):1437-1444. doi: 10.1093/annonc/mdy103. PMID: 29617710; PMCID: PMC6354674.
17. Wilson BE, Routy B, Nagrial A, Chin VT. The effect of antibiotics on clinical outcomes in immune-checkpoint blockade: a systematic review and meta-analysis of observational studies. *Cancer Immunol Immunother*. 2020 Mar;69(3):343-354. doi: 10.1007/s00262-019-02453-2. Epub 2019 Dec 21. PMID: 31865400.
18. Salgia NJ, Bergerot PG, Maia MC, Dizman N, Hsu J, Gillece JD, Folkerts M, Reining L, Trent J, Highlander SK, Pal SK. Stool Microbiome Profiling of Patients with Metastatic Renal Cell Carcinoma Receiving Anti-PD-1 Immune Checkpoint Inhibitors. *Eur Urol*. 2020 Oct;78(4):498-502. doi: 10.1016/j.eururo.2020.07.011. Epub 2020 Aug 19. PMID: 32828600.
19. Pearce MM, Hilt EE, Rosenfeld AB, Zilliox MJ, Thomas-White K, Fok C, Kliethermes S, Schreckenberger PC, Brubaker L, Gai X, Wolfe AJ. The female urinary microbiome: a comparison of women with and without urgency urinary incontinence. *mBio*. 2014 Jul 8;5(4):e01283-14. doi: 10.1128/mBio.01283-14. PMID: 25006228; PMCID: PMC4161260.
20. Thomas-White K, Taege S, Limeira R, Brincat C, Joyce C, Hilt EE, Mac-Daniel L, Radek KA, Brubaker L, Mueller ER, Wolfe AJ. Vaginal estrogen therapy is associated with increased Lactobacillus in the urine of postmenopausal women with overactive bladder symptoms. *Am J Obstet Gynecol*. 2020 Nov;223(5):727.e1-727.e11. doi: 10.1016/j.ajog.2020.08.006. Epub 2020 Aug 11. PMID: 32791124; PMCID: PMC7609597.
21. Karstens L, Asquith M, Davin S, Stauffer P, Fair D, Gregory WT, Rosenbaum JT, McWeeney SK, Nardos R. Does the Urinary Microbiome Play a Role in Urgency Urinary Incontinence and Its Severity? *Front Cell Infect Microbiol*. 2016 Jul 27;6:78. doi: 10.3389/fcimb.2016.00078. PMID: 27512653; PMCID: PMC4961701.
22. Thomas-White KJ, Hilt EE, Fok C, Pearce MM, Mueller ER, Kliethermes S, Jacobs K, Zilliox MJ, Brincat C, Price TK, Kuffel G, Schreckenberger P, Gai X, Brubaker L, Wolfe AJ.

- Incontinence medication response relates to the female urinary microbiota. *Int Urogynecol J*. 2016 May;27(5):723-33. doi: 10.1007/s00192-015-2847-x. Epub 2015 Sep 30. PMID: 26423260; PMCID: PMC5119460.
23. Siddiqui H, Lagesen K, Nederbragt AJ, Jeansson SL, Jakobsen KS. Alterations of microbiota in urine from women with interstitial cystitis. *BMC Microbiol*. 2012 Sep 13;12:205. doi: 10.1186/1471-2180-12-205. PMID: 22974186; PMCID: PMC3538702.
 24. Jacobs KM, Price TK, Thomas-White K, Halverson T, Davies A, Myers DL, Wolfe AJ. Cultivable Bacteria in Urine of Women With Interstitial Cystitis: (Not) What We Expected. *Female Pelvic Med Reconstr Surg*. 2020 Apr 6. doi: 10.1097/SPV.0000000000000854. Epub ahead of print. PMID: 32265402.
 25. Robles MTS, Cantalupo PG, Duray AM, Freeland M, Murkowski M, van Bokhoven A, Stephens-Shields AJ, Pipas JM, Imperiale MJ. Analysis of viruses present in urine from patients with interstitial cystitis. *Virus Genes*. 2020 Aug;56(4):430-438. doi: 10.1007/s11262-020-01767-z. Epub 2020 May 23. PMID: 32447589; PMCID: PMC7339973.
 26. Magistro G, Stief CG, Wagenlehner FME. Chronische Prostatitis/chronisches Beckenschmerzsyndrom [Chronic prostatitis/chronic pelvic pain syndrome]. *Urologe A*. 2020 Jun;59(6):739-748. German. doi: 10.1007/s00120-020-01226-5. PMID: 32495006.
 27. Nickel JC, Stephens A, Landis JR, Chen J, Mullins C, van Bokhoven A, Lucia MS, Melton-Kreft R, Ehrlich GD; MAPP Research Network. Search for Microorganisms in Men with Urologic Chronic Pelvic Pain Syndrome: A Culture-Independent Analysis in the MAPP Research Network. *J Urol*. 2015 Jul;194(1):127-35. doi: 10.1016/j.juro.2015.01.037. Epub 2015 Jan 14. PMID: 25596358; PMCID: PMC4475477.
 28. Shoskes DA, Altemus J, Polackwich AS, Tucky B, Wang H, Eng C. The Urinary Microbiome Differs Significantly Between Patients With Chronic Prostatitis/Chronic Pelvic Pain Syndrome and Controls as Well as Between Patients With Different Clinical Phenotypes. *Urology*. 2016 Jun;92:26-32. doi: 10.1016/j.urology.2016.02.043. Epub 2016 Mar 9. PMID: 26970449.
 29. Mändar R, Punab M, Korrovits P, Türk S, Ausmees K, Lapp E, Preem JK, Oopkaup K, Salumets A, Truu J. Seminal microbiome in men with and without prostatitis. *Int J Urol*. 2017 Mar;24(3):211-216. doi: 10.1111/iju.13286. Epub 2017 Feb 1. PMID: 28147438.
 30. Choi JB, Lee SJ, Kang SR, Lee SS, Choe HS. Analysis of bacterial community using pyrosequencing in semen from patients with chronic pelvic pain syndrome: a pilot study. *Transl Androl Urol*. 2020 Apr;9(2):398-404. doi: 10.21037/tau.2020.02.05. PMID: 32420145; PMCID: PMC7215052.