

DAFTAR PUSTAKA

- Agarwal, V., Bell, G.W., Nam, J., Bartel, D.P., 2015. Predicting effective microRNA target sites in mammalian mRNAs 1–38. doi:10.7554/eLife.05005
- Albitar, M., Ma, W., Lund, L., Albitar, F., Diep, K., Fritsche, H.A., et al., 2016. Predicting prostate biopsy results using a panel of plasma and urine biomarkers combined in a scoring system. *J. Cancer* 7, 297–303. doi:10.7150/jca.12771
- American Cancer Society, 2018. Global Cancer Facts & Figures 4 th Edition-Special section, the obesity epidemic. *Am. Cancer Soc.* 76.
- Anwar, S., S.J., H., Aryandono, T., Haryana, S.M., 2017. micro-RNA : biogenesis, fungsi, dan perannya dalam proses karsinogenesis dan penatalaksanaan kanker. Gadjah Mada University Press, Yogyakarta.
- Bashir, M.N., 2015. Epidemiology of prostate cancer. *Asian Pacific J. Cancer Prev.* 16, 5137–5141. doi:10.7314/APJCP.2015.16.13.5137
- Bebelman, M.P., Smit, M.J., Pegtel, D.M., Baglio, S.R., 2018. Biogenesis and function of extracellular vesicles in cancer. *Pharmacol. Ther.* 188, 1–11. doi:10.1016/j.pharmthera.2018.02.013
- Bryzgunova, O.E., Zaripov, M.M., Skvortsova, T.E., Lekchnov, E.A., Grigor'eva, A.E., Zaporozhchenko, I.A., et al., 2016. Comparative study of extracellular vesicles from the urine of healthy individuals and prostate cancer patients. *PLoS One* 11, 1–17. doi:10.1371/journal.pone.0157566
- Bunney, T.D., Katan, M., 2010. Phosphoinositide signalling in cancer: Beyond PI3K and PTEN. *Nat. Rev. Cancer* 10, 342–352. doi:10.1038/nrc2842
- Ceder, Y., Bjartell, A., Culig, Z., Rubin, M.A., Tomlins, S., Visakorpi, T., 2016. The Molecular Evolution of Castration-resistant Prostate Cancer. *Eur. Urol. Focus* 2, 506–513. doi:10.1016/j.euf.2016.11.012
- Chaidir, M., Rainy, U., D.M, S., Nur, R., Noegroho, B.S., Tjahjodjati, B.B.P., et al., 2015. Panduan Penatalaksanaan Klinis Pembesaran Prostat Jinak (Benign Prostatic Hyperplasia / BPH), 2nd ed. Ikatan Ahli Urologi Indonesia, Jakarta.
- Chandrasekar, T., Yang, J.C., Gao, A.C., Evans, C.P., 2015. Mechanisms of resistance in castration-resistant prostate cancer (CRPC). *Transl. Androl. Urol.* 4, 365–380. doi:10.3978/j.issn.2223-4683.2015.05.02
- Chen, C.D., Welsbie, D.S., Tran, C., Baek, S.H., Chen, R., Vessella, R., et al., 2004. Molecular determinants of resistance to antiandrogen therapy. *Nat.*

Med. 10, 33–39. doi:10.1038/nm972

Chen, H., Liu, H., Zou, H., Chen, R., Dou, Y., Sheng, S., et al., 2016. Evaluation of plasma miR-21 and miR-152 as diagnostic biomarkers for common types of human cancers. *J. Cancer* 7, 490–499. doi:10.7150/jca.12351

Danarto, R., Astuti, I., Umbas, R., Haryana, S.M., 2020. Urine miR-21-5p and miR-200c-3p as potential non-invasive biomarkers in patients with prostate cancer. *Turkish J. Urol.* 46, 26–30. doi:10.5152/tud.2019.19163

Danila, D.C., Heller, G., Gignac, G.A., Gonzalez-Espinoza, R., Anand, A., Tanaka, E., et al., 2007. Circulating tumor cell number and prognosis in progressive castration-resistant prostate cancer. *Clin. Cancer Res.* 13, 7053–7058. doi:10.1158/1078-0432.CCR-07-1506

Datta, D., Gupta, D.K., Raha, S., 2016. Human Prostate Cancer Hallmarks Map. *Nat. Publ. Gr.* 6, 1–14. doi:10.1038/srep30691

Desvignes, T., Batzel, P., Berezikov, E., Eilbeck, K., Eppig, J.T., McAndrews, M.S., et al., 2015. MiRNA Nomenclature: A View Incorporating Genetic Origins, Biosynthetic Pathways, and Sequence Variants. *Trends Genet.* 31, 613–626. doi:10.1016/j.tig.2015.09.002

Enokida, H., 2018. microRNA Analysis in Prostate Cancer, in: Arai, Y., Ogawa, O. (Eds.), *Hormone Therapy and Castration Resistance of Prostate Cancer*. pp. 267–291. doi:10.1007/978-981-10-7013-6

Feng, Y.H., Tsao, C.J., 2016. Emerging role of microRNA-21 in cancer (Review). *Biomed. Reports* 5, 395–402. doi:10.3892/br.2016.747

Fenic, I., Franke, F., Failing, K., Steger, K., Woenckhaus, J., 2004. Expression of PTEN in malignant and non-malignant human prostate tissues: comparison with p27 protein expression. *J. Pathol.* 203, 559–566. doi:10.1002/path.1545

Fernandes, R.C., Hickey, T.E., Tilley, W.D., Selth, L.A., 2019. Interplay between the androgen receptor signaling axis and microRNAs in prostate cancer. *Endocr. Relat. Cancer* 26, R237–R257. doi:10.1530/ERC-18-0571

Foj, L., Ferrer, F., Serra, M., Arevalo, A., Gavagnach, M., Gimenez, N., et al., 2016. Exosomal and Non-Exosomal Urinary miRNAs in Prostate Cancer Detection and Prognosis. *Prostate* 77, 573–583. doi:10.1002/pros.23295

Fujita, S., Ito, T., Mizutani, T., Minoguchi, S., Yamamichi, N., Sakurai, K., et al., 2008. miR-21 Gene Expression Triggered by AP-1 Is Sustained through a Double-Negative Feedback Mechanism. *J. Mol. Biol.* 378, 492–504. doi:10.1016/j.jmb.2008.03.015

Gabriel, K., Ingram, A., Austin, R., Kapoor, A., Tang, D., Majeed, F., et al., 2013.

- Regulation of the Tumor Suppressor PTEN through Exosomes: A Diagnostic Potential for Prostate Cancer. *PLoS One* 8, 1–13. doi:10.1371/journal.pone.0070047
- Geyik, E., Igci, Y.Z., Pala, E., Suner, A., Borazan, E., Bozgeyik, I., et al., 2014. Investigation of the association between ATP2B4 and ATP5B genes with colorectal cancer. *Gene* 540, 178–182. doi:10.1016/j.gene.2014.02.050
- Guan, Y., Wu, Y., Liu, Y., Ni, J., Nong, S., 2016. Association of microRNA-21 expression with clinicopathological characteristics and the risk of progression in advanced prostate cancer patients receiving androgen deprivation therapy. *Prostate* 76, 986–993. doi:10.1002/pros.23187
- Hata, A., Lieberman, J., 2015. Dysregulation of microRNA biogenesis and gene silencing in cancer. *Sci. Signal.* 8, 1–11.
- Hayes, J.H., Barry, M.J., 2014. Screening for prostate cancer with the prostate-specific antigen test: A review of current evidence. *JAMA - J. Am. Med. Assoc.* 311, 1143–1149. doi:10.1001/jama.2014.2085
- Heidenreich, A., Bastian, P.J., Bellmunt, J., Bolla, M., Joniau, S., Van Der Kwast, T., et al., 2014. EAU guidelines on prostate cancer. Part 1: Screening, diagnosis, and local treatment with curative intent - Update 2013. *Eur. Urol.* 65, 124–137. doi:10.1016/j.eururo.2013.09.046
- Heneghan, H., Miller, N., Kerin, M., 2014. MicroRNAs as biomarkers and therapeutic targets in cancer. *Biotechnol. Appl.* 31, 87–92. doi:10.1016/j.coph.2010.05.010
- Hopkins, B.D., Hodakoski, C., Barrows, D., Mense, S.M., Parsons, R.E., 2014. PTEN function: The long and the short of it. *Trends Biochem. Sci.* 39, 183–190. doi:10.1016/j.tibs.2014.02.006
- Huang, X., Yuan, T., Liang, M., Du, M., Xia, S., Dittmar, R., et al., 2015. Exosomal miR-1290 and miR-375 as prognostic markers in castration-resistant prostate cancer. *Eur. Urol.* 67, 33–41. doi:10.1016/j.eururo.2014.07.035
- Humphreys, M.R., Fernandes, K.A., Sridhar, S.S., 2013. Impact of age at diagnosis on outcomes in men with castrate-resistant prostate cancer (CRPC). *J. Cancer* 4, 304–314. doi:10.7150/jca.4192
- Jamaspishvili, T., Berman, D.M., Ross, A.E., Scher, H.I., De Marzo, A.M., Squire, J.A., et al., 2018. Clinical implications of PTEN loss in prostate cancer. *Nat. Rev. Urol.* 15, 222–234. doi:10.1038/nrurol.2018.9
- Kasivisvanathan, V., Rannikko, A.S., Borghi, M., Panebianco, V., Mynderse, L.A., Vaarala, M.H., et al., 2018. MRI-targeted or standard biopsy for

prostate-cancer diagnosis. *N. Engl. J. Med.* 378, 1767–1777.
doi:10.1056/NEJMoa1801993

Kavya, K., Kumar, M.N., Patil, R.H., Hegde, S.M., Kiran Kumar, K.M., Nagesh, R., et al., 2017. Differential expression of AP-1 transcription factors in human prostate LNCaP and PC-3 cells: role of Fra-1 in transition to CRPC status. *Mol. Cell. Biochem.* 433, 13–26. doi:10.1007/s11010-017-3012-2

Kemenkes, 2017. Komite Penanggulangan Kanker Nasional. Pedoman Nasional Pelayanan Kedokteran : Kanker Prostat. Kementerian Kesehatan, Indonesia.

Kemenkes, 2015. Kanker Prostat. Kemenkes RI, Jakarta.

Kojima, S., Goto, Y., Naya, Y., 2017. The roles of microRNAs in the progression of castration-resistant prostate cancer. *J. Hum. Genet.* 62, 25–31. doi:10.1038/jhg.2016.69

Koppers-lalic, D., Hackenberg, M., Menezes, R. De, 2014. Non-invasive prostate cancer detection by measuring miRNA variants (isomiRs) in urine extracellular vesicles. *Oncotarget* 7, 22566–22578. doi:10.18632/oncotarget.8124

Lange, T., Stracke, S., Rettig, R., Lendeckel, U., Kuhn, J., Schlüter, R., et al., 2017. Identification of miR-16 as an endogenous reference gene for the normalization of urinary exosomal miRNA expression data from CKD patients. *PLoS One* 12, 1–13. doi:10.1371/journal.pone.0183435

Lázaro-Ibáñez, E., Lunavat, T.R., Jang, S.C., Escobedo-Lucea, C., Oliver-De La Cruz, J., Siljander, P., et al., 2017. Distinct prostate cancer-related mRNA cargo in extracellular vesicle subsets from prostate cell lines. *BMC Cancer* 17, 1–11. doi:10.1186/s12885-017-3087-x

Lee, H.C., Yang, C.W., Chen, C.Y., Au, L.C., 2011. Single point mutation of microRNA may cause butterfly effect on alteration of global gene expression. *Biochem. Biophys. Res. Commun.* 404, 1065–1069. doi:10.1016/j.bbrc.2010.12.114

Liu, H., Cheng, L., Cao, D., Zhang, H., 2018. Suppression of mir-21 expression inhibits cell proliferation and migration of liver cancer cells by targeting phosphatase and tensin homolog (PTEN). *Med. Sci. Monit.* 24, 3571–3577. doi:10.12659/MSM.907038

Lu, J., Der Steen, T. Van, Tindall, D.J., 2015. Are androgen receptor variants a substitute for the full-length receptor? *Nat. Rev. Urol.* 12, 137–144. doi:10.1038/nrurol.2015.13

Lutz, S.Z., Hennenlotter, J., Scharpf, M.O., Sailer, C., Fritsche, L., Schmid, V., et

- al., 2018. Androgen receptor overexpression in prostate cancer in type 2 diabetes. *Mol. Metab.* 8, 158–166. doi:10.1016/j.molmet.2017.11.013
- MacFarlane, L.-A., R. Murphy, P., 2010. MicroRNA: Biogenesis, Function and Role in Cancer. *Curr. Genomics* 11, 537–561. doi:10.2174/138920210793175895
- Mccabe, N., Kennedy, R.D., Prise, K.M., 2016. The role of PTEN as a cancer biomarker. *Oncoscience* 3, 54–55.
- Merchant, M.L., Rood, I.M., Deegens, J.K.J., Klein, J.B., 2018. Isolation and characterization of urinary extracellular vesicles: Implications for Biomarker Discovery. *Nat Rev Nephrol* 13, 731–749. doi:10.1038/nrneph.2017.148.Isolation
- Mestdagh, P., Van Vlierberghe, P., De Weer, A., Muth, D., Westermann, F., Speleman, F., et al., 2009. A novel and universal method for microRNA RT-qPCR data normalization. *Genome Biol.* 10. doi:10.1186/gb-2009-10-6-r64
- Mishra, S., Deng, J.J., Gowda, P.S., Rao, M.K., Lin, C.L., Chen, C.L., et al., 2014. Androgen receptor and microRNA-21 axis downregulates transforming growth factor beta receptor II (TGFB2) expression in prostate cancer. *Oncogene* 33, 4097–4106. doi:10.1038/onc.2013.374
- Mizutani, K., Terazawa, R., Kameyama, K., Kato, T., Horie, K., Tsuchiya, T., et al., 2014. Isolation of prostate cancer-related exosomes. *Anticancer Res.* 34, 3419–3423.
- Mori, R., Wang, Q., Danenberg, K.D., Pinski, J.K., Danenberg, P. V., 2008. Both β -actin and GAPDH are useful reference genes for normalization. *Prostate* 68, 1555–1560.
- Mottet, N., Bellmunt, J., Bolla, M., Briers, E., Cumberbatch, M.G., De Santis, M., et al., 2017. EAU-ESTRO-SIOG Guidelines on Prostate Cancer. Part 1: Screening, Diagnosis, and Local Treatment with Curative Intent. *Eur. Urol.* 71, 618–629. doi:10.1016/j.eururo.2016.08.003
- Mulholland, D.J., Tran, L.M., Li, Y., Cai, H., Morim, A., Wang, S., et al., 2011. Cell autonomous role of PTEN in regulating castration-resistant prostate cancer growth. *Cancer Cell* 19, 792–804. doi:10.1016/j.ccr.2011.05.006
- Ottman, R., Nguyen, C., Lorch, R., Chakrabarti, R., 2014. MicroRNA expressions associated with progression of prostate cancer cells to antiandrogen therapy resistance. *Mol. Cancer* 13, 1–21. doi:10.1186/1476-4598-13-1
- Park, H.K., Lim, S.D., Kwon, G.Y., 2019. mRNA expressions of androgen receptor and its variants in matched hormone-sensitive and castration-resistant prostate cancer. *Scand. J. Urol.* 53, 365–371.

doi:10.1080/21681805.2019.1697359

- Perdana, N.R., Mochtar, C.A., Umbas, R., Hamid, A.R.A., 2016. The Risk Factors of Prostate Cancer and Its Prevention: A Literature Review. *Acta Med. Indones.* 48, 228–238.
- Properzi, F., Logozzi, M., Fais, S., 2013. Exosomes: the future of biomarkers in medicine. *Biomark. Med.* 7, 769–778. doi:10.2217/bmm.13.63
- Rezaei, S., Mahjoubin Tehran, M., Sahebkar, A., Jalili, A., Hamid Aghae-Bakhtiari, S., 2019. Androgen receptor-related micro RNAs in prostate cancer and their role in antiandrogen drug resistance. *J. Cell. Physiol.* 1–13.
- Ribas, J., Ni, X., Haffner, M., Wentzel, E.A., Salmasi, A.H., Chowdhury, W.H., et al., 2009. miR-21: An androgen receptor-regulated microRNA that promotes hormone-dependent and hormone-independent prostate cancer growth. *Cancer Res.* 69, 7165–7169. doi:10.1158/0008-5472.CAN-09-1448
- Shih, J.W., Wang, L.Y., Hung, C.L., Kung, H.J., Hsieh, C.L., 2015. Non-coding RNAs in castration-resistant prostate cancer: Regulation of androgen receptor signaling and cancer metabolism. *Int. J. Mol. Sci.* 16, 28943–28978. doi:10.3390/ijms161226138
- Song, C., Huan, C., Xu, C., Ru, G., 2014. Uncovering the roles of miRNAs and their relationship with androgen receptor in prostate cancer. *IUBMB Life* 66, 379–386. doi:10.1002/iub.1281
- Stuopelyte, K., Daniunaite, K., Jankevičius, F., Jarmalaite, S., 2016. Detection of miRNAs in urine of prostate cancer patients. *Med.* 52, 116–124. doi:10.1016/j.medic.2016.02.007
- Tan, M.H.E., Li, J., Xu, H.E., Melcher, K., Yong, E., 2014. Androgen receptor : structure , role in prostate cancer and drug discovery. *Nat. Publ. Gr.* 36, 3–23. doi:10.1038/aps.2014.18
- Taylor, B.S., Schultz, N., Hieronymus, H., Gopalan, A., Xiao, Y., Carver, B.S., et al., 2010. Integrative Genomic Profiling of Human Prostate Cancer. *Cancer Cell* 18, 11–22. doi:10.1016/j.ccr.2010.05.026
- Ugalde-Olano, A., Egia, A., Fernández-Ruiz, S., Loizaga-Iriarte, A., Zuñiga-García, P., Garcia, S., et al., 2015. Methodological aspects of the molecular and histological study of prostate cancer: Focus on PTEN. *Methods* 77, 25–30. doi:10.1016/j.ymeth.2015.02.005
- Umbas, R., Hardjowijoto, S., Mochtar, C.A., Safriadi, F., Djatisoesanto, W., Soedarso, M.A., et al., 2011. Panduan Penatalaksanaan Kanker Prostat, Ikatan Ahli Urologi Indonesia. Ikatan Ahli Urologi Indonesia, Jakarta. doi:10.1016/j.lwt.2013.10.030

- Wang, Lishui, Liu, Y., Du, L., Li, J., Jiang, X., Zheng, G., et al., 2015. Identification and validation of reference genes for the detection of serum microRNAs by reverse transcription - quantitative polymerase chain reaction in patients with bladder cancer. *Mol. Med. Rep.* 12, 615–622. doi:10.3892/mmr.2015.3428
- Wang, Y., Romigh, T., He, X., Tan, M., Orloff, M.S., Silverman, R.H., et al., 2011. Differential regulation of PTEN expression by androgen receptor in prostate and breast cancers. *Oncogene* 30, 4327–4338. doi:10.1038/onc.2011.144
- Watahiki, Y., Macfarlane, R.J., Gleave, M.E., Crea, F., Wang, Y., Helgason, C.D., et al., 2013. Plasma miRNAs as biomarkers to identify patients with castration-resistant metastatic prostate cancer. *Int. J. Mol. Sci.* 14, 7757–7770. doi:10.3390/ijms14047757
- Woo, H.K., Park, J., Ku, J.Y., Lee, C.H., Sunkara, V., Ha, H.K., et al., 2019. Urine-based liquid biopsy: Non-invasive and sensitive AR-V7 detection in urinary EVs from patients with prostate cancer. *Lab Chip* 19, 87–97. doi:10.1039/c8lc01185k
- Yang, Y., Guo, J.X., Shao, Z.Q., 2017. miR-21 targets and inhibits tumor suppressor gene PTEN to promote prostate cancer cell proliferation and invasion: An experimental study. *Asian Pac. J. Trop. Med.* 10, 87–91. doi:10.1016/j.apjtm.2016.09.011
- Zhang, J., Zhao, H., Gao, Y., Zhang, W., 2012. Secretory miRNAs as novel cancer biomarkers. *Biochim. Biophys. Acta - Rev. Cancer* 1826, 32–43. doi:10.1016/j.bbcan.2012.03.001