

## REFERENCES

- AACC Academy, 2019. Erythrocyte sedimentation rate. Available at: <https://labtestsonline.org/tests/erythrocyte-sedimentation-rate-esr> (Accessed: 6 December 2019).
- American Cancer Society, 2017a. Breast Cancer Facts & Figures 2017-2018. Atlanta: American Cancer Society. Available at: <https://www.who.int/cancer/prevention/diagnosis-screening/breast-cancer/en/> (Accessed: 23 January 2019).
- American Cancer Society, 2017b. Infographic: breast cancer screening guideline. Available at: <http://www.cancer.org/research/infographics-gallery/breast-cancer-screening-guideline.html> (Accessed: 6 December 2019).
- American Proficiency Institute, 2006. Educational Commentary - The Erythrocyte Sedimentation Rate and its Clinical Utility, *Event (London)*, pp. 1–3.
- ARNA Genomics. *ARNA BC beats the breast cancer*. Available at: <https://medium.com/@arnagenomics/arna-bc-beats-the-breast-cancer-6036ee4bcaf0> (Accessed: 23 May 2019).
- Baicus, C., Caraiola, S., Rimbasa, M., Patrascu, R., 2011 Utility of Routine Hematological and Inflammation Parameters for the Diagnosis of Cancer in Involuntary Weight Loss, *Journal of Investigative Medicine*, 59(6), pp. 951–955. doi: 10.2310/JIM.0b013e31822467a3.
- Bambace, N.M. and Holmes, C.E., 2011. The platelet contribution to cancer progression, *Journal of Thrombosis and Haemostasis*, 9(2), pp. 237–249. doi: 10.1111/j.1538-7836.2010.04131.x.
- Basu, D. and Kulkarni, R., 2014. Overview of blood components and their preparation, *Indian Journal of Anaesthesia*. Indian Society of Anaesthetists, pp. 529–537. doi: 10.4103/0019-5049.144647.
- Belloc, C., Lu, H., Soria, C., Fridman, R., Legrand, Y., Menashi, S., 1995 The effect of platelets on invasiveness and protease production of human mammary tumor cells. *International Journal of Cancer*. doi: 10.1002/ijc.2910600324.
- Bochen, K., Krasowska, A., Milaniuk, S., Kulczyńska, A.P., Dzida, G., 2011 Erythrocyte sedimentation rate – an old marker with new applications. *Journal of Pre-Clinical and Clinical Research*, 5(2), pp. 50–55. Available at: [www.jpccr.eu](http://www.jpccr.eu).
- Brigden, M.L., 1998. The erythrocyte sedimentation rate: Still a helpful test when used judiciously. *Postgraduate Medicine*, 103(5), pp. 257–274. doi: 10.3810/pgm.1998.05.493.
- Brigden, M.L., 1999. Clinical utility of the erythrocyte sedimentation rate, *American Family Physician*. Available at: <https://www.aafp.org/afp/1999/1001/p1443.html> (Accessed: 5 December 2019).
- Centers for Disease Control and Prevention, 2011. Breast Cancer Facts. Available at: <http://www.cdc.gov/uscs>. (Accessed: 23 January 2019).
- Centers for Disease Control and Prevention, 2018. CDC - What Is Breast Cancer Screening? Available at:

- [https://www.cdc.gov/cancer/breast/basic\\_info/screening.htm](https://www.cdc.gov/cancer/breast/basic_info/screening.htm) (Accessed: 15 February 2019).
- Chien, S. and Jan, K., 1973. Red cell aggregation by macromolecules: roles of surface adsorption and electrostatic repulsion. *Journal of Supramolecular and Cellular Biochemistry*, 1(4–5), pp. 385–409. doi: 10.1002/jss.400010418.
- Coleman, M.P., Quaresma, M., Berrino, F., Lutz, J., Angelis, R.D., Copocaccia, R., 2008. Cancer survival in five continents: a worldwide population-based study (CONCORD), *Pharmaciens Hospitalier et Clinicien*, 51(1), pp. 40–50. doi: 10.1016/S1470-2045(08)70179-7.
- Dai, X., Li, T., Bai, Z., Yang, Y., Liu, X., Zhan, J., 2015. Breast cancer intrinsic subtype classification, clinical use and future trends. *American Journal of Cancer Research*. E-Century Publishing Corporation, pp. 2929–2943.
- Dean, L., 2005. Blood groups and red cell antigens. *National Center for Biotechnology Information*. Bethesda: National Library of Medicine. doi: 10.1160/TH04-04-0251.
- Emeribe, A. and Ukonu, G., 1992. Comparative study of erythrocyte sedimentation rate using three diluents. *Med Lab Sci*, pp. 2:41–44.
- Farrokhyar, F., Reddy, D., Poolman, R.W., Bhandari, M., 2012. Why perform a priori sample size calculation?, pp. 207–213. doi: 10.1503/cjs.018012.
- Fernandes, H.P., Cesar, C.L., Barjas-Castro, M.L., 2011. Electrical properties of the red blood cell membrane and immunohematological investigation. *Revista Brasileira de Hematologia e Hemoterapia*, 33(4), pp. 297–301. doi: 10.5581/1516-8484.20110080.
- Greer, J.P., Rodgers, G.M., Glader, B., Arber, D.A., Means Jr, R.T., List, A.F., 2018. *Wintrobe's clinical hematology*. 13th edn. Philadelphia: Lippincott Williams & Wilkins.
- Hellquist, B.N., Czene, K., Hjälm, A., Nyström, L., Jonsson, H., 2015. Effectiveness of population-based service screening with mammography for women ages 40 to 49 years with a high or low risk of breast cancer: Socioeconomic status, parity, and age at birth of first child. John Wiley and Sons Inc., 121(2), pp. 251–258. doi: 10.1002/cncr.29011.
- Ho-tin-noe, B. Carbo, C Demers, M. Cifuni, S.M. Goerge, T. Wagner, D.D., 2009. Innate immune cells induce hemorrhage in tumors during thrombocytopenia. *American Journal of Pathology*. doi: 10.2353/ajpath.2009.090460.
- J.Tortora, G. and Derrickson, B., 2014. Principles of anatomy & physiology. 14th edn. Hoboken: John Wiley & Sons.
- Kabel, A. M., 2017. Tumor markers of breast cancer: New perspectives. *Journal of Oncological Sciences*. Elsevier BV, 3(1), pp. 5–11. doi: 10.1016/j.jons.2017.01.001.
- Kazarian, A., Blyuss, O., Metodieva, G., Gentry-Maharaj, A., Ryan, A., Kiseleva, E.M., 2017. Testing breast cancer serum biomarkers for early detection and prognosis in pre-diagnosis samples. *British Journal of Cancer*. Nature Publishing Group, 116(4), pp. 501–508. doi: 10.1038/bjc.2016.433.
- Keohane, E.M., Smith, L.J., Walenga, J.M. (2016) *Rodak's hematology: clinical principles and application*. 5th edn. Canada: Elsevier.
- Kvinnsländ, S., 1999. The leucocyte nadir, a predictor of chemotherapy efficacy?.

- British Journal of Cancer*, 80(11), p. 1681. doi: 10.1038/sj.bjc.6690583.
- Lal, I., Dittus, K., Holmes, C.E., 2013. Platelets, coagulation and fibrinolysis in breast cancer progression.. *Breast cancer research : BCR*, 15(4), p. 207. doi: 10.1186/bcr3425.
- Leukemia and Lymphoma Society. Understanding blood counts. Available at: <https://www.lls.org/managing-your-cancer/lab-and-imaging-tests/understanding-blood-counts> (Accessed: 7 December 2019).
- Lewis, T.C., Pizzitola, V.J., Giurescu, M.E., Eversman, W.G., Lorans, R., Robinson, K.A., 2017. Contrast-enhanced digital mammography: a single-institution experience of the first 208 cases. *The Breast Journal*, 23(1), pp. 67–76. doi: 10.1111/tbj.12681.
- Litwack, G., 2018. Blood and lymphatic system. *Human Biochemistry*. Elsevier, pp. 681–708. doi: 10.1016/b978-0-12-383864-3.00021-1.
- Marić, P., Ozretić, P., Levanat, S., Oresković, S., Antunac, K., Beketić-Oresković, L., 2011. Tumor markers in breast cancer-evaluation of their clinical usefulness. *Collegium antropologicum*, 35(1), pp. 241–7. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/21661378>.
- Martins, G.S., Cardoso, A.V., Marcondes, G.A., 2007. Agregação e sedimentação eritrocitária utilizando VHS (velocidade de hemossedimentação) e espectrofotometria UV-Vis. *Matéria (Rio de Janeiro)*, 12(1), pp. 206–214. doi: 10.1590/S1517-70762007000100026.
- Menon, U., Ryan, A., Kalsi, J., Gentry-Maharaj, A., Dawnay, A., Habib, M., 2015. Risk algorithm using serial biomarker measurements doubles the number of screen-detected cancers compared with a single-threshold rule in the United Kingdom Collaborative Trial of Ovarian Cancer Screening. *Journal of Clinical Oncology*. American Society of Clinical Oncology, 33(18), pp. 2062–2071. doi: 10.1200/JCO.2014.59.4945.
- Milosevic, M., Jankovic, D., Milenkovic, A., Stojanov, D., 2018. Early diagnosis and detection of breast cancer. *Technology and Health Care*, 26(4), pp. 729–759. doi: 10.3233/THC-181277.
- Ministry of Health Indonesia, 2015. Pusat data dan informasi kementerian kesehatan Republik Indonesia, InfoDatin “STOP KANKER”. *Ministry of Health Indonesia*. doi: 2442-7659.
- Mittal, S., Kaur, H., Gautam, N., Mantha, A.K., 2017. Biosensors for breast cancer diagnosis: A review of bioreceptors, biotransducers and signal amplification strategies. *Biosensors and Bioelectronics*. Elsevier Ltd, 88, pp. 217–231. doi: 10.1016/j.bios.2016.08.028.
- Monig, H., Marquardt, D., Arendt, T., Kloehn, S., 2002. Limited value of elevated erythrocyte sedimentation rate as an indicator of malignancy. *Family Practice*, 19(5), pp. 436–438. doi: 10.1093/fampra/19.5.436.
- Moseley, D.L. and Bull, B.S., 1982. A comparison of the Wintrobe, the Westergren and the ZSR erythrocyte sedimentation rate (ESR) methods to a candidate reference method. *Clinical and laboratory haematology*, 4(2), pp. 169–78. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/7116797> (Accessed: 8 December 2019).
- National Breast Cancer Foundation. Breast cancer risk factor. Available at:

- <https://www.nationalbreastcancer.org/breast-cancer-risk-factors> (Accessed: 6 December 2019).
- National Cancer Institute, 2019. Breast Cancer Treatment (PDQ®): Health Professional Version, PDQ Cancer Information Summaries. Available at: [https://www.cancer.gov/types/breast/hp/breast-treatment-pdq#\\_1749\\_toc](https://www.cancer.gov/types/breast/hp/breast-treatment-pdq#_1749_toc) (Accessed: 16 February 2019).
- National Cancer Institute. Definition of cancer - NCI Dictionary of Cancer Terms - National Cancer Institute. Available at: <https://www.cancer.gov/publications/dictionaries/cancer-terms/def/cancer?redirect=true> (Accessed: 22 January 2019).
- National Heart Lung and Blood Institute. Thrombocytopenia and Thrombocytosis. Available at: <https://www.nhlbi.nih.gov/health-topics/thrombocytopenia-and-thrombocytosis> (Accessed: 23 February 2019).
- Ngadikun, 1998. Pengukuran Laju Endap Darah dengan Metode Spektrometri. Universitas Indonesia.
- Ngadikun, 2003. Gambaran potensial zeta membran eritrosit (PZME) secara spektrometri pada penderita kanker hati: Upaya awal pengembangan diagnostik dini untuk keganasan. Yogyakarta.
- Ngadikun, 2006. Gambaran Pola Potensial Zeta Sel Darah dengan Metode Spektrofotometri pada Pasien Karsinoma Hepatoseluler dan Tikus (*Rattus norvegicus*). Fakultas Kedokteran Universitas Padjajaran.
- Nounou, M.I., Elamrawy, F., Ahmed, N., Abdelraouf, K., Goda, S., Syed-Sha-Qhattal, H., 2015. Breast cancer: Conventional diagnosis and treatment modalities and recent patents and technologies supplementary issue: Targeted therapies in breast cancer treatment. *Breast Cancer: Basic and Clinical Research*. Libertas Academica Ltd., 9, pp. 17–34. doi: 10.4137/BCBCR.S29420.
- Nugroho, K., Abraha, K., Ngadikun, N., 2017. The Mechanism of Erythrocytes Aggregation in EDTA-Blood of Ovarian Cancer Patients Viewed by Coulomb's Law. *International Journal on Advanced Science, Engineering and Information Technology*, 7(6), p. 2175. doi: 10.18517/ijaseit.7.6.3159.
- Onega, T., Goldman, L.E., Walker, R.L., Miglioretti, D.L., Buist, D.S., Taplin, S., 2016. Facility mammography volume in relation to breast cancer screening outcomes. *Journal of Medical Screening*. SAGE Publications Ltd, 23(1), pp. 31–37. doi: 10.1177/0969141315595254.
- Payne, C.H. and Hogg, F.S., 1928. On Methods and Applications in Spectrophotometry. *Proceedings of the National Academy of Sciences*. Proceedings of the National Academy of Sciences, 14(1), pp. 88–93. doi: 10.1073/pnas.14.1.88.
- Peterson, J.E., Zurakowski, D., Italiano, J.E., Michel, L.V., Fox, L., Klement, G.L., 2010. Normal ranges of angiogenesis regulatory proteins in human platelets. *American Journal of Hematology*. doi: 10.1002/ajh.21732.
- Placke, T., Orgel, M., Rammensee, H.G., Schaller, M., Jung, G., Salih, H.R., 2011. Platelet-Derived MHC Class I Confers a Pseudonormal Phenotype to Cancer Cells That Subverts the Antitumor Reactivity of Natural Killer Immune Cells. *Cancer Research*. doi: 10.1158/0008-5472.can-11-1872.

- Riley, V., 1976. Breast cancer patients: Substance in blood causing acceleration of erythrocyte sedimentation rate. *Science*, 191(4222), pp. 86–88. doi: 10.1126/science.1246598.
- Roganovic, D., Djilas, D., Vujnovic, S., Pavic, D., Stojanov, D., 2015. Breast MRI, digital mammography and breast tomosynthesis: Comparison of three methods for early detection of breast cancer. *Bosnian Journal of Basic Medical Sciences*. Association of Basic Medical Sciences Federation of Bosnia and Herzegovina, 15(4), pp. 64–68. doi: 10.17305/bjbms.2015.616.
- Rosales, C., 2018. Neutrophil: A cell with many roles in inflammation or several cell types?. *Frontiers in Physiology*. Frontiers Media S.A. doi: 10.3389/fphys.2018.00113.
- Rubach, M., Szymendera, J. J., Kamińska, J., Kowalska, M., 1997. Serum CA 15.3, CEA and ESR patterns in breast cancer. *International Journal of Biological Markers*, 12(4), pp. 168–173.
- Sharma, G.N, Dave, R., Sanadya, J., Sharma, P., Sharma, K.K., 2010. Various types and management of breast cancer: an overview. *Journal of advanced pharmaceutical technology & research*. Wolters Kluwer -- Medknow Publications, 1(2), pp. 109–26. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22247839> (Accessed: 17 February 2019).
- Singh, V., Saunders, C., Wylie, L., Bourke, A., 2008. New diagnostic techniques for breast cancer detection. *Future Oncology*, pp. 501–513. doi: 10.2217/14796694.4.4.501.
- Stone, R.L., Nick, A.M., McNeish, I.A., Balkwill, F., Han, H.D., Bottsford-Miller, J., 2012. Paraneoplastic thrombocytosis in ovarian cancer the center for RNA interference and non-coding RNA. *Hematology and Oncology Biostatistics Leukemia*, 366(7), pp. 610–618. doi: 10.1056/NEJMoa1110352.
- Sysmex Europe. *PLT-F Channel*. Available at: <https://www.sysmex-europe.com/academy/knowledge-centre/measurement-technologies/plt-f-channel.html> (Accessed: 16 September 2019).
- Trumbo, T.A., Schultz, E., Borland, M.G., Pugh, M.E., 2013. Applied spectrophotometry: Analysis of a biochemical mixture. *Biochemistry and Molecular Biology Education*, 41(4), pp. 242–250. doi: 10.1002/bmb.20694.
- Waks, A.G., Winer, E.P., 2019. Breast cancer treatment: a review. *JAMA - Journal of the American Medical Association*, 321(3), pp. 288–300. doi: 10.1001/jama.2018.19323.
- Wardle, J., Robb, K., Vernon, S., Waller, J., 2015. Screening for Prevention and Early Diagnosis of Cancer. doi: 10.1037/a0037357.
- World Health Organization, 2007. Knowledge into Action WHO Guide for Effective Programmes: Prevention', in Cancer Control.
- World Health Organization, 2014a. Cancer Country Profile: Indonesia, *Cancer Country Profiles*, pp. 22–23. doi: 10.6%.
- World Health Organization, 2014b. World cancer report.pdf, *World Health Organization*. Available at: [http://www.env.go.jp/air/asbestos/commi\\_hhmd/03/ext01.pdf](http://www.env.go.jp/air/asbestos/commi_hhmd/03/ext01.pdf).
- World Health Organization, 2016. Breast cancer: prevention and control. World

- Health Organization. Available at: <https://www.who.int/cancer/detection/breastcancer/en/index1.html> (Accessed: 24 January 2019).
- World Health Organization, 2018. WHO | Cancer. *WHO*. World Health Organization. Available at: <https://www.who.int/cancer/en/> (Accessed: 22 January 2019).
- World Health Organization, 2007. Knowledge into Action WHO Guide for Effective Programmes: Early Detection, in Cancer Control. p. 42. doi: ISBN: 92 4 154734 5.
- Yen, T.W.F., Li, J., Sparapani, R.A., Laud, P.W., Nattinger, A.B., 2016. The interplay between hospital and surgeon factors and the use of sentinel lymph node biopsy for breast cancer. *Medicine (United States)*. Lippincott Williams and Wilkins, 95(31). doi: 10.1097/MD.0000000000004392.
- Yersal, O., Barutca, S., 2014. Biological subtypes of breast cancer: prognostic and therapeutic implications. *World Journal of Clinical Oncology*. Baishideng Publishing Group Co., Limited, 5(3), pp. 412–424. doi: 10.5306/wjco.v5.i3.412.
- Zeeshan, M., Salam, B., Khalid, Q.S.B., Alam, S., Sayani, R., 2018. Diagnostic accuracy of digital mammography in the detection of breast cancer. *Cureus*. Cureus, Inc. doi: 10.7759/cureus.2448.
- Zeta Potential - an overview | ScienceDirect Topics*. Available at: <https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/zeta-potential> (Accessed: 8 December 2019).