

REFERENCES

- Barrientos-Soto, M. C., Castañeda-García, M., Herrera-García, A., Padilla-López, S., Dimas-Adame, M. A., & Cazares-Tamez, R. 2017. "The use of DTT in the resolution of the interferences generated by daratumumab in the blood bank". *Medicina Universitaria*. Vol. 19. No. 76. pp. 127–130.
- Birken, S., Armstrong, E., Kolks, M., Cole, L. A., Agosto, G., & Krichevsky, A. 1988. "Structure of human chorionic gonadotrophin β -subunit core fragment from pregnancy urine". *Endocrinology*. Vol. 123. No. 1. pp 572-583.
- Cao, L., Fang, C., Zeng, R., Zhao, X., Jiang, Y., & Chen, Z. 2017. "Paper-based microfluidic devices for electrochemical immunofiltration analysis of human chorionic gonadotropin". *Biosensors and Bioelectronics*. Vol. 92. No. 2017. pp. 87–94.
- Cate, D. M., Nanthasurasak, P., Riwkulkajorn, P., Orange, C. L., Henry, C. S., & Volckens, J. 2014. "Rapid Detection of Transition Metals in Welding Fumes Using Paper-Based Analytical Devices". *Annals of Occupational Hygiene*. Vol. 58. No. 4. pp. 413–423.
- Cavalli, R., Donalisio, M., Civra, A., Ferruti, P., Ranucci, E., Trotta, F., & Lembo, D. 2009. "Enhanced antiviral activity of Acyclovir loaded into β -cyclodextrin-poly(4-acryloylmorpholine) conjugate nanoparticles". *Journal of Controlled Release*. Vol. 137. No. 2. pp 116-122.
- Chang, C., Chen, C., Chen, C., & Lin, C. 2014. "Facile colorimetric detection of human chorionic gonadotropin based on the peptide-induced aggregation of gold nanoparticles $\dagger$ ". *Analytical Methods*. Vol. 7. No.1. pp. 29–33.
- Clifton, F., & Mountain, M. D. 1997. "Revisions in the International System for Staging Lung Cancer". *Chest*. Vol. 111. No. 6. pp. 1710–1717.
- Cole, L. A. 1997. "Immunoassay of human chorionic gonadotropin, its free subunits, and metabolites". *Clinical Chemistry*. Vol. 43. No. 12. pp. 2233–2243.
- Cole, L. A. 2015. *Human Chorionic Gonadotropin*. Human Chorionic Gonadotropin (HGC). 2nd ed. Massachusetts: Elsevier.
- Durocher, S., Rezaee, A., Hamm, C., Rangan, C., Mittler, S., & Mutus, B. 2009. "Disulfide-Linked , Gold Nanoparticle Based Reagent for Detecting Small Molecular Weight Thiols". *Journal of American Chemical Society*. Vol. 131. No. 7. pp. 2475–2477.
- Dutse, S. W., Yusof, N. A., & Ahmad, H. 2017. "Functionalized gold nano-composite electrochemical sensor for the recognition of genomic DNA". In *Proceedings of IASTEM International Conference*. pp. 13–17. Mecca, Saudi Arabia.

- “Exams and Tests for Cancer.” 2018. Retrieved December 25, 2018, from <https://www.cancer.org/treatment/understanding-your-diagnosis/tests.html>
- Fischer, M. J. E. 2010. “Amine Coupling Through EDC/NHS: A Practical Approach”. *Methods in Molecular Biology (Clifton, N.J.)*. Vol. 627. pp. 55–73.
- Frens, G. 1973. “Controlled Nucleation for the Regulation of the Particle Size in Monodisperse Gold Suspensions”. *Nature Physical Science*. Vol. 241. pp. 20–22.
- Gao, W., Wang, W., Yao, S., Wu, S., Zhang, H., Zhang, J., Zhao, J. 2017. “Highly sensitive detection of multiple tumor markers for lung cancer using gold nanoparticle probes and microarrays”. *Analytica Chimica Acta*. Vol. 958. pp. 77–84.
- Grabar, K. C., Freeman, R. G., Hommer, M. B., & Natan, M. J. 1995. “Preparation and Characterization of Au Colloid Monolayers”. Vol. 67. No. 4. pp. 1217–1225.
- Haiss, W., Thanh, N. T. K., Aveyard, J., & Fernig, D. G. 2007. “Determination of size and concentration of gold nanoparticles from UV-Vis spectra”. *Analytical Chemistry*. Vol. 79. No. 11. pp. 4215–4221.
- Harmita. 2004. “Petunjuk Pelaksanaan Validasi Metode dan Cara Perhitungannya”. *Majalah Ilmu Kefarmasian*. Vol. I. No. 3. pp. 117–135.
- Honary, S., Gharaei-fathabad, E., Paji, Z. K., & Eslamifar, M. 2012. “A Novel Biological Synthesis of Gold Nanoparticle by Enterobacteriaceae Family”. *Tropical Journal of Pharmaceutical Research*. Vol. 11. No. 6. pp. 887–891.
- Kardana, A., Elliot, M., Gawinowicz, M., Birken, S., & Cole, L. A. 1991. “The heterogeneity of HCG: I. Characterization of peptide variations in 13 individual preparations of HCG”. *Endocrinology*. Vol. 129. No. 3. pp. 1541–1550.
- Khan, S. A., DeGrasse, J. A., Yakes, B. J., & Croley, T. R. 2015. “Rapid and sensitive detection of cholera toxin using gold nanoparticle-based simple colorimetric and dynamic light scattering assay”. *Analytica Chimica Acta*. Vol. 892. pp. 167–174.
- Kiroula, N., Negi, J. S., Singh, K., Rawat, R., & Singh, B. 2016. “Preparation and characterization of ganciclovir-loaded glutathione modified gold nanoparticles”. *Indian Journal of Pharmaceutical Sciences*. Vol. 78. No.3. pp. 313–319.
- Kumar, S., Gandhi, K. S., & Kumar, R. 2007. “Modeling of formation of gold nanoparticles by citrate method”. *Industrial and Engineering Chemistry Research*. Vol. 46. No. 10. pp. 3128–3136.
- Lapthorn, A., Harris, D., Littlejohn, A., Lustbader, J., Canfield, R., & Machin, K. 1994. “Crystal structure of human chorionic gonadotropin”. *Nature*. Vol. 369. No. 6480. pp. 455–461.
- Louis, C., & Pluchery, O. 2012. *Gold Nanoparticles for Physics, Chemistry and Biology*. Imperial College Press.
- McPherson, R. A., & Pincus, M. R. 2017. *Henry’s Clinical Diagnosis and Management by Laboratory Methods*. 23rd ed. St Louis, Missouri: Elsevier.
- Ministry of Health Malaysia. 2012. *National Point Of Care Testing Policy and Guidelines*. Medical Development Division.

- Mintz, K., Waidely, E., Zhou, Y., Peng, Z., Al-Youbi, A. O., Bashammakh, A. S., Leblanc, R. M. 2018. "Carbon dots and gold nanoparticles based immunoassay for detection of alpha-L-fucosidase". *Analytica Chimica Acta*. Vol. 1041. pp. 114-121.
- Mohd Yusri, M. A. Y., Abu Hassan, M. H., & Azhari, S. 2019. "Evaluation of glutathione disulfide-functionalized gold nanoparticle-based sensor for detection of human chorionic gonadotropin". In A. A. Mat Ali, S. R. Mat, S. Sulaiman, M. M. A. Mohd Anas, H. S. Ariffin, & A. Abd Rahman (Eds.), *Contemporary Issues: Islam & Science - eProceedings of International Seminar on Islam and Science 2019*. pp. 396-403. USIM Press, Universiti Sains Islam Malaysia.
- Morgan, F., Birken, S., & Canfield, R. 1975. "The amino acid sequence of human chorionic gonadotrophin. The α -subunit and β -subunit". *Journal of Biological Chemistry*. Vol. 2250. No. 13. pp. 5247-5258.
- Muhammed Maasus, F. A. 2019. *Development of chemical-based sensor for polyphenol detection in jamu*. . Universiti Sains Islam Malaysia.
- Nagatani, N., Tanaka, R., Yuhi, T., Endo, T., Kerman, K., Takamura, Y., & Tamiya, E. 2006. "Gold nanoparticle-based novel enhancement method for the development of highly sensitive immunochromatographic test strips". *Science and Technology of Advanced Materials*. Vol. 7. No. 3. pp. 270-275.
- National Cancer Institute. 2018. "Testicular Cancer Treatment (PDQ®) – Health Professional Version". Retrieved December 28 2018, from <https://www.cancer.gov/types/testicular/hp/testicular-treatment-pdq>
- Nguyen, N.-T., & Wereley, S. T. 2002. *Fundamentals and Applications of Microfluidics*. 2nd Edition. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.466.4414&rep=rep1&type=pdf>
- Ostadfar, A. 2016. *Fluid Mechanics and Biofluids Principles*. Biofluid Mechanics. Elsevier Inc.
- PDQ® Adult Treatment Editorial Board. 2018. "Testicular Cancer Treatment (PDQ®)– Health Professional Version".
- Putnam, D. F. 1971. *Composition and concentrative properties of human urine*. Washington D.C.
- Randviir, E. P., Kampouris, D. K., & Banks, C. E. 2013. "An improved electrochemical creatinine detection method via a Jaffe-based procedure". *Analyst*. Vol. 138. No. 21. pp. 6565-6572.
- Ratnarathorn, N., Chailapakul, O., Henry, C. S., & Dungchai, W. 2012. "Simple silver nanoparticle colorimetric sensing for copper by paper-based devices". *Talanta*. Vol. 99. pp. 552-557.
- Rutherford, G., Xiao, B., Carvajal, C., Farrell, M., Santiago, K., Cashwell, I., & Pradhan, A. 2015. "Photochemical growth of highly densely packed gold nanoparticle films for biomedical diagnostics". *ECS Journal of Solid State Science and Technology*. Vol. 4. No. 10. pp. S3071-S3076.
- Satija, J., Bharadwaj, R., Sai, V., & Mukherji, S. 2010. "Emerging use of nanostructure

- films containing capped gold nanoparticles in biosensors". *Nanotechnology, Science and Applications*. Vol. 3. pp. 171–188.
- Shah, P., Zhu, X., & Li, C. 2013. "Development of paper-based analytical kit for point-of-care testing". *Expert Review of Molecular Diagnostics*. Vol. 13. No. 1. pp. 83–91.
- Smith, R. C., & Reed, V. 1992. "Inhibition by thiols of copper(II)-induced oxidation of oxyhemoglobin." *Chemico-Biological Interactions*. Vol. 82. No. 2. pp. 209–217.
- Song, Y., Cheng, D., & Zhao, L. 2018. *Microfluidics: Fundamentals, Devices, and Applications*. Wiley-VCH.
- Tanaka, R., Yuhi, T., Nagatani, N., Endo, T., Kerman, K., Takamura, Y., & Tamiya, E. 2006. "A novel enhancement assay for immunochromatographic test strips using gold nanoparticles". *Analytical and Bioanalytical Chemistry*. Vol. 385. No. 8. pp. 1414–1420.
- Tidy, J., & Hancock, B. W. 2010. "The Management of Gestational Trophoblastic Disease". *Royal College of Obstetricians & Gynaecologists*. No. 38. pp. 1–11.
- Tran, M., DePenning, R., Turner, M., & Padalkar, S. 2016. "Effect of citrate ratio and temperature on gold nanoparticle size and morphology". *Materials Research Express*. Vol. 3. No. 10.
- Tseng, C. C., Yang, R. J., Ju, W. J., & Fu, L. M. 2018. "Microfluidic paper-based platform for whole blood creatinine detection". *Chemical Engineering Journal*. Vol. 348. No. February. pp. 117–124.
- Turkevich, J., Stevenson, P. C., & Hillier, J. 1951. "A study of the nucleation and growth process in the synthesis of colloidal gold". *Discussions of the Faraday Society*. Vol. 11. pp. 55–75.
- Vaitukaitis, J. L. 2004. "Development of the home pregnancy test". *Annals of the New York Academy of Sciences*. Vol. 1038. pp. 220–222.
- Wang, W., Li, J., Dong, C., Li, Y., Kou, Q., Yan, J., & Zhang, L. 2018. "Ultrasensitive ELISA for the detection of hCG based on assembled gold nanoparticles induced by functional polyamidoamine dendrimers". *Analytica Chimica Acta*. Vol. 1042. pp. 116–124.
- Wu, L., & Qu, X. 2015. "Cancer biomarker detection: Recent achievements and challenges". *Chemical Society Reviews*. Vol. 44. No. 10. pp. 2963–2997.
- Wulandari, L., Retnaningtyas, Y., & Mustafidah, D. 2013. "Development and Method Validation Densitometry Thin Layer Chromatography for The Simultaneous Determination of Theophylline and Ephedrinehydrochloride In Tablet Dosage Form". *Indonesian Journal of Applied Chemistry*. Vol. 15. No. 1. pp. 15–21.
- Wulandari, P., Nagahiro, T., Fukada, N., Kimura, Y., Niwano, M., & Tamada, K. 2015. "Characterization of citrates on gold and silver nanoparticles". *Journal of Colloid and Interface Science*. Vol. 438. pp. 244–248.
- Wulandari, P., Nagahiro, T., Michioka, K., Tamada, K., Ishibashi, K. ichi, Kimura, Y., & Niwano, M. 2008. "Coordination of carboxylate on metal nanoparticles

characterized by Fourier transform infrared spectroscopy”. *Chemistry Letters*. Vol. 37. No. 8. pp. 888–889.

Xia, H., Xiahou, Y., Zhang, P., Ding, W., & Wang, D. 2016. “Revitalizing the Frens Method To Synthesize Uniform, Quasi- Spherical Gold Nanoparticles with Deliberately Regulated Sizes from 2 to 330 nm”. *Langmuir*. Vol. 32. No. 23. pp. 5870-5880.

Xia, N., Chen, Z., Liu, Y., Ren, H., & Liu, L. 2017. “Peptide aptamer-based biosensor for the detection of human chorionic gonadotropin by converting silver nanoparticles-based colorimetric assay into sensitive electrochemical analysis”. *Sensors and Actuators, B: Chemical*. Vol. 243. pp. 784-791.

Zhang, W., Duan, H., Chen, R., Ma, T., Zeng, L., Leng, Y., & Xiong, Y. 2019. “Effect of different-sized gold nanoflowers on the detection performance of immunochromatographic assay for human chorionic gonadotropin detection”. *Talanta*. Vol. 194. pp. 604–610.