UNIVERSITAS
GADJAH MADA
Pencitraan Fotoakustik pada Phantom Jaringan Lunak sebagai Model Hiperglikemia dengan Variasi Konsentrasi Glukosa dan Tingkat Dehidrasi
SECUNDA MAHARANI PUTRI, Prof. Dr. Mitrayana, S.Si., M.Si.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abramczyk, H. (2005). *Introduction to Laser Spectroscopy (1st ed.)*. Elsevier B.V.

Adam, K.R., Apriyanto, D.K., Wasono, M.A.J. & Mitrayana. (2025) 'Application of photoacoustic imaging system in polyvinyl chloride and blood vessel phantom for simulation of diabetes detection', *Journal of Instrumentation*, 20(6), P06007. doi:10.1088/1748-0221/20/06/P06007.

Ahn, J., Baik, J.W., Kim, D., Choi, K., Lee, S., Park, S.-M., Kim, J.Y., Nam, S.H. & Kim, C. (2023) '*In vivo* photoacoustic monitoring of vasoconstriction induced by acute hyperglycemia', *Photoacoustics*, 30, 100485. doi:10.1016/j.pacs.2023.100485.

Amar, L. (1964) 'Detection d'omes elastiques (ultrasonores) sur l'os occipital, induites par impulsions laser dans l'oeil d'un lapin', C. R. Acad. Sc. Paris, 259, pp. 3653–3655.

American Diabetes Association (2024) 'Standards of Medical Care in Diabetes—2024', *Diabetes Care*, 47(Suppl. 1), pp. S1–S194.

Arora, D., Cooley, D., Perry, T., Skliar, M. & Roemer, R.B. (2005) 'Direct thermal dose control of constrained focused ultrasound treatments: phantom and in vivo evaluation', *Physics in Medicine and Biology*, 50(8), pp. 1919–1935. doi:10.1088/0031-9155/50/8/019.

Bageshwar, D.V., Pawar, A.S., Khanvilkar, V.V. & Kadam, V.J. (2010) 'Photoacoustic spectroscopy and its applications: a tutorial review', *Eurasian Journal of Analytical Chemistry*, 5(2), pp. 187–203.

Ballou, G. (ed.) (2009) *Electroacoustic Devices: Microphones and Loudspeakers*. 1st ed. Oxford: Focal Press, Elsevier.

Beard, P. (2011) 'Biomedical photoacoustic imaging', *Interface Focus*, 1(4), pp. 602–631. doi:10.1098/rsfs.2011.0028.

Bednov, A.A., Savateeva, E.V. & Oraevsky, A.A. (2003) 'Opto-acoustic monitoring of blood optical properties as a function of glucose concentration', *Proceedings of SPIE: Biomedical Optoacoustics IV*, 4960, pp. 21–29. doi:10.1117/12.479519.

Bell, A.G. (1880) 'Photoacoustic imaging and spectroscopy', *American Journal of Science*, 20, pp. 305.

Bereda, G. (2022) 'Role of insulin: Perspectives', *Diabetes and Islet Biology*, 5(1), pp. 01–06. doi:10.31579/2641-8975/030.

Bohndiek, S.E., Bodapati, S., Van De Sompel, D., Kothapalli, S.R. & Gambhir, S.S. (2013) 'Development and application of stable phantoms for the evaluation of photoacoustic imaging instruments', *PLoS One*, 8(9), e75533. doi:10.1371/journal.pone.0075533.

Bowen, T. (1981) 'Radiation induced thermoacoustic imaging', *Proceedings of the IEEE Ultrasonics Symposium*, 19.

Brownlee, M. (2001) 'Biochemistry and molecular cell biology of diabetic complications', *Nature*, 414(6865), pp. 813–820. doi:10.1038/414813a.

UNIVERSITAS
GADJAH MADA
Pencitraan Fotoakustik pada Phantom Jaringan Lunak sebagai Model Hiperglikemia dengan Variasi Konsentrasi Glukosa dan Tingkat Dehidrasi
SECUNDA MAHARANI PUTRI, Prof. Dr. Mitrayana, S.Si., M.Si.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Canney, M.S., Bailey, M.R., Crum, L.A., Khokhlova, V.A. & Sapozhnikov, O.A. (2008) 'Acoustic characterization of high intensity focused ultrasound fields: a combined measurement and modeling approach', *The Journal of the Acoustical Society of America*, 124(4), pp. 2406–2420. doi:10.1121/1.2967836.

Cember, H. & Johnson, T.E. (2008) *Introduction to Health Physics*. 4th ed. New York: McGraw-Hill Professional.

Chico, A., Aguilera, E., Ampudia-Blasco, F.J., Bellido, V., Cardona-Hernández, R., Escalada, F.J., Fernández, D., Gómez-Peralta, F., González Pérez de Villar, N., Gorgojo, J.J., Mezquita-Raya, P., Morales, C., de Pablos Velasco, P., Palomares, R., Parra, J., Rivero, M.T. & González-Blanco, C. (2019) 'Clinical approach to flash glucose monitoring: An expert recommendation', *Journal of Diabetes Science and Technology*, 13(4), pp. 1–10. doi:10.1177/1932296819841911.

Culjat, M.O., Goldenberg, D., Tewari, P. & Singh, R.S. (2010) 'A review of tissue substitutes for ultrasound imaging', *Ultrasound in Medicine and Biology*, 36(6), pp. 861–873. doi:10.1016/j.ultrasmedbio.2010.02.012.

Darmawan Yoga, M., Mitrayana, & Ali Joko Wasono, M. (2015). 'Kinerja Spektroskopi Fotoakustik Laser CO2 untuk Deteksi Gas Etilen (C2H4), Aseton (C3HO), Amonia (NH3) pada Gas Hembus Perokok', *Jurnal Fisika Indonesia*, 19(57), pp. 35–42.

Demtröder, W. (2014) *Laser Spectroscopy Vol. 1*. 5th ed. Berlin: Springer-Verlag.

Emelianov, S.Y., Li, P.-C. & O'Donnell, M. (2009) 'Photoacoustics for molecular imaging and therapy', *Physics Today*, 62(8), pp. 34–39.

Fernández-López, J.A., Angosto, J.M., Giménez, P.J. & León, G. (2013) 'Thermal stability of selected natural red extracts used as food colorants', *Plant Foods for Human Nutrition*, 68(1), pp. 11–17. doi:10.1007/s11130-013-0337-1.

Fischer, P., Sembritzki, K. & Maier, A. (2018) 'System theory', in Maier, A., Steidl, S., Christlein, V. & Hornegger, J. (eds.) *Medical Imaging Systems*. Lecture Notes in Computer Science, vol. 11111. Cham: Springer, pp. 13–36. doi:10.1007/978-3-319-96520-8_2.

Forbes, J.M. & Cooper, M.E. (2013) 'Mechanisms of diabetic complications', *Physiological Reviews*, 93(1), pp. 137–188. doi:10.1152/physrev.00045.2011.

Giménez, P.J., Fernández-López, J.A., Angosto, J.M. & Obón, J.M. (2015) 'Comparative thermal degradation patterns of natural yellow colorants used in foods', *Plant Foods for Human Nutrition*, 70(4), pp. 380–387. doi:10.1007/s11130-015-0499-0.

Glory, S. (2023) *Aplikasi sistem pencitraan fotoakustik berbasis laser dioda dan mikrofon kondensor untuk deteksi usus ayam berformalin*. Tesis Magister, Universitas Gadjah Mada, Yogyakarta.

Gonzalez, R.C. & Woods, R.E. (2018) *Digital image processing*. 4th edn. Harlow: Pearson.

Hacker, L., Joseph, J., Lilaj, L., Manohar, S., Ivory, A.M., Tao, R., Bohndiek, S.E. & Members of IPASC (2024) 'Tutorial on phantoms for photoacoustic

UNIVERSITAS
GADJAH MADA
Pencitraan Fotoakustik pada Phantom Jaringan Lunak sebagai Model Hiperglikemia dengan Variasi Konsentrasi Glukosa dan Tingkat Dehidrasi
SECUNDA MAHARANI PUTRI, Prof. Dr. Mitrayana, S.Si., M.Si.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

imaging applications', *Journal of Biomedical Optics*, 29(8), 080801. doi:10.1117/1.JBO.29.8.080801.

Haisch, C. (2012) 'Photoacoustic spectroscopy for analytical measurements', *Measurement Science and Technology*, 23(1). doi:10.1088/0957-0233/23/1/012001.

Hollyland (2025) *How does a condenser microphone work?*. Available at: https://www.hollyland.com/blog/how-does-condenser-microphone-work (Accessed: 15 December 2025).

Hosseinaee, Z., Le, M., Bell, K. & Haji Reza, P. (2020) 'Towards non-contact photoacoustic imaging', *Photoacoustics*, 20, 100207. doi:10.1016/j.pacs.2020.100207.

Hunt, F.V. (1954) *Electroacoustics: The Analysis of Transduction, and Its Historical Background*. 1st ed. New York: John Wiley & Sons.

Iheagwam, F.N. & Iheagwam, O.T. (2025) 'Diabetes mellitus: the pathophysiology as a canvas for management elucidation and strategies', *Medicine in Novel Technology and Devices*, 25, 100351. doi:10.1016/j.medntd.2025.100351.

International Diabetes Federation (IDF) (2024) *Diabetes facts and figures*. Available at: https://idf.org/about-diabetes/diabetes-facts-figures/ (Accessed: 14 December 2025).

Joshi, D. & Pal, M. (2025) 'Lightweight transformer-driven segmentation of hotspots and snail trails in solar PV thermal imagery', *arXiv preprint*, arXiv:2507.20680. doi:10.48550/arXiv.2507.20680.

Juliano, R., Anas, A.M. & Mitrayana (2023) 'Characterization of photoacoustic tomography based on 450 nm visible light and its application for detection of formalin fish meat', *Journal of Physics: Conference Series*, 2498(1), 012015. doi:10.1088/1742-6596/2498/1/012015.

Kempski, K.M., Graham, M.T., Gubbi, M.R., Palmer, T. & Lediju Bell, M.A. (2020) 'Application of the generalized contrast-to-noise ratio to assess photoacoustic image quality', *Biomedical Optics Express*, 11(7), pp. 3684–3698. doi:10.1364/BOE.391026.

Kinnunen, M. & Myllylä, R. (2005) 'Effect of glucose on photoacoustic signals at the wavelengths of 1064 and 532 nm in pig blood and intralipid', *Journal of Physics D: Applied Physics*, 38, pp. 2654–2661. doi:10.1088/0022-3727/38/15/018.

Kleiner, M. (2013) *Electroacoustics*. 1st ed. Boca Raton: CRC Press.

Kovatchev, B.P. (2017) 'Metrics for glycaemic control – from HbA1c to continuous glucose monitoring', *Nature Reviews Endocrinology*, 13(7), pp. 425–436. doi:10.1038/nrendo.2017.3

Lee, J.E., Sridharan, B., Kim, D., Sung, Y., Park, J.H. & Lim, H.G. (2025) 'Continuous glucose monitoring: Minimally and non-invasive technologies', *Clinica Chimica Acta*, 575, 120358. doi:10.1016/j.cca.2025.120358.

Lierke, E.G. & Hemsel, T. (2006) 'Focusing cross-fire applicator for ultrasonic hyperthermia of tumors', *Ultrasonics*, 44(Suppl. 1), pp. e341–e344. doi:10.1016/j.ultras.2006.07.004.

UNIVERSITAS
GADJAH MADA
Pencitraan Fotoakustik pada Phantom Jaringan Lunak sebagai Model Hiperglikemia dengan Variasi Konsentrasi Glukosa dan Tingkat Dehidrasi
SECUNDA MAHARANI PUTRI, Prof. Dr. Mitrayana, S.Si., M.Si.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Lin, X., Xu, Y., Pan, X., Xu, J., Ding, Y., Song, X., Ren, Y. & Shan, P.-F. (2020) 'Global, regional, and national burden and trend of diabetes in 195 countries and territories: an analysis from 1990 to 2025', *Scientific Reports*, 10, 14790.

Lu, X., Xie, Q., Pan, X., Zhang, R., Zhang, X., Peng, G., Zhang, Y., Shen, S. & Tong, N. (2024) 'Type 2 diabetes mellitus in adults: pathogenesis, prevention and therapy', *Signal Transduction and Targeted Therapy*, 9(1), 262. doi:10.1038/s41392-024-01951-9.

Manwar, R., Zafar, M. & Xu, Q. (2020) 'Signal and image processing in biomedical photoacoustic imaging: A review', *Optics*, 2(1), pp. 1–24. doi:10.3390/opt2010001.

Maqfiroh, C., Widyaningrum, R., Anas, A.M. & Mitrayana (2023) 'Application of photoacoustic imaging for pneumonia detection', *Makara Journal of Science*, 27(2), Article 2. doi:10.7454/mss.v27i2.1423

Martins, A.J.L., Velásquez, R.J., Gaillac, D.B., Santos, V.N., Tami, D.C., Souza, R.N.P., Osorio, F.C., Fogli, G.A., Soares, B.S., Drummond, J.B. & Mosquera-Lopez, C.M. (2025) 'A comprehensive review of non-invasive optical and microwave biosensors for glucose monitoring', *Biosensors and Bioelectronics*, 271, 117081. doi:10.1016/j.bios.2024.117081.

Maxwell, A.D., Wang, T.Y., Yuan, L., Duryea, A.P., Xu, Z. & Cain, C.A. (2010) 'A tissue phantom for visualization and measurement of ultrasound-induced cavitation damage', *Ultrasound in Medicine & Biology*, 36(12), pp. 2132–2143. doi:10.1016/j.ultrasmedbio.2010.08.023.

Mayrovitz, H.N., McClymont, A. & Pandya, N. (2013) 'Skin tissue water assessed via tissue dielectric constant measurements in persons with and without diabetes mellitus', *Diabetes Technology & Therapeutics*, 15(1), pp. 60–65. doi:10.1089/dia.2012.0197.

McIlvain, G., Ganji, E., Cooper, C., Killian, M.L., Ogunnaike, B.A. & Johnson, C.L. (2019) 'Reliable preparation of agarose phantoms for use in quantitative magnetic resonance elastography', *Journal of the Mechanical Behavior of Biomedical Materials*, 97, pp. 65–73. doi:10.1016/j.jmbbm.2019.05.001.

Mustafa, O.G., Haq, M., Dashora, U., Castro, E., Dhatariya, K.K. & Joint British Diabetes Societies (JBDS) for Inpatient Care Group (2023) 'Management of hyperosmolar hyperglycaemic state (HHS) in adults: an updated guideline from the Joint British Diabetes Societies (JBDS) for Inpatient Care Group', *Diabetic Medicine*, 40(3), e15005. doi:10.1111/dme.15005.

Mustari, A., Nishidate, I., Wares, M.A., Maeda, T., Kawauchi, S., Sato, S., Sato, M. & Aizu, Y. (2018) 'Agarose-based tissue mimicking optical phantoms for diffuse reflectance spectroscopy', *Journal of Visualized Experiments (JoVE)*, (138), 57578. doi:10.3791/57578.

Nafi'ah, W. A. (2016) *Deteksi Frekuensi Akustik pada Buah Kelapa Magelang (Cocos nucifera) MenggunakanSoftware Spectraplus-DT*. Skripsi Sarjana, Universitas Gadjah Mada, Yogyakarta.

UNIVERSITAS
GADJAH MADA
Pencitraan Fotoakustik pada Phantom Jaringan Lunak sebagai Model Hiperglikemia dengan Variasi Konsentrasi Glukosa dan Tingkat Dehidrasi
SECUNDA MAHARANI PUTRI, Prof. Dr. Mitrayana, S.Si., M.Si.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Navas, M.J., Jiménez, A.M. & Asuero, A.G. (2012) 'Human biomarkers in breath by photoacoustic spectroscopy', *Clinica Chimica Acta*, 413(15–16), pp. 1171–1178. doi:10.1016/j.cca.2012.04.008.

Omer, H. (2021) 'Radiobiological effects and medical applications of non-ionizing radiation', *Saudi Journal of Biological Sciences*, 28(10), pp. 5585–5592. doi:10.1016/j.sjbs.2021.05.071.

Palma-Chavez, J., Wear, K.A., Mantri, Y., Jokerst, J.V. & Vogt, W.C. (2022) 'Photoacoustic imaging phantoms for assessment of object detectability and boundary buildup artifacts', *Photoacoustics*, 26, 100348. doi:10.1016/j.pacs.2022.100348.

Pang, K., Liu, Q., Zhu, Y. & Wei, X. (2024) 'In vivo photoacoustic flow cytometry-based study of the effect of melanin content on melanoma metastasis', *Journal of Biophotonics*, 17(3), e202300405. doi:10.1002/jbio.202300405.

Pao, Y.-H. (1977) *Optoacoustic Spectroscopy and Detection*. 1st ed. New York: Academic Press.

Pratama, B.W., Widyaningrum, R., Setiawan, A. & Mitrayana (2025) 'Application of photoacoustic spectroscopy for glucose level measurement: a literature review', *Journal of Multidisciplinary Applied Natural Science*, 5(2), pp. 509–522. doi:10.47352/jmans.2774-3047.260.

Qin, Y., Zhang, J., Babapoor-Farrokhran, S., Applewhite, B., Deshpande, M., Megarity, H., Flores-Bellver, M., Aparicio-Domingo, S., Ma, T., Rui, Y., Tzeng, S.Y., Green, J.J., Canto-Soler, M.V., Montaner, S. & Sodhi, A. (2022) 'PAI-1 is a vascular cell-specific HIF-2-dependent angiogenic factor that promotes retinal neovascularization in diabetic patients', *Science Advances*, 8(9), eabm1896. doi:10.1126/sciadv.abm1896.

Rahu, M.A., Shaikh, Q., Jabeen, M. and Perveen, S. (2025) 'Regulation of hyperglycemia in type 2 diabetes mellitus: Insights into current therapeutic pathways', *Letters in Drug Design & Discovery*, 100204. doi:10.1016/j.lddd.2025.100204.

Roden, M. & Shulman, G.I. (2019) 'The integrative biology of type 2 diabetes', *Nature*, 576, pp. 51–60. doi:10.1038/s41586-019-1797-8.

Rossing, T.D. & Fletcher, R.H. (1995) *Principle of Vibration and Sound*. *วารสารวิชาการมหาวิทยาลัยอีสเทิร์นเอเชีย*, 4.

Sari, A.W., Widyaningrum, R., Setiawan, A. & Mitrayana (2024) 'Photoacoustic imaging of gingival inflammation using low-cost near-infrared diode laser', *Applied Acoustics*, 218, 109903. doi:10.1016/j.apacoust.2024.109903.

Sitanggang, D. & Sumardi, H. (2002) 'Pengenalan vokal bahasa Indonesia dengan jaringan saraf tiruan melalui transformasi Fourier', *Simposium Nasional RAPI*, Jakarta.

Tang, X., Zhong, J., Zhang, H., Luo, Y., Liu, X., Peng, L., Zhang, Y., Qian, X., Jiang, B., Liu, J., Li, S. & Chen, Y. (2019) 'Visit-to-visit fasting plasma glucose variability is an important risk factor for long-term changes in left cardiac structure and function in patients with type 2 diabetes',

UNIVERSITAS
GADJAH MADA
Pencitraan Fotoakustik pada Phantom Jaringan Lunak sebagai Model Hiperglikemia dengan Variasi Konsentrasi Glukosa dan Tingkat Dehidrasi
SECUNDA MAHARANI PUTRI, Prof. Dr. Mitrayana, S.Si., M.Si.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Cardiovascular Diabetology, 18(1), 50. doi:10.1186/s12933-019-0854-9.

Tang, Y., Long, J. & Liu, J. (2014) 'Hyperglycemia-associated oxidative stress induces autophagy', *Elsevier eBooks*, pp. 105–115. doi:10.1016/6978-0-12-405530-8.00008-x.

Tasmara, F.A., Widyaningrum, R., Setiawan, A. & Mitrayana (2023) 'Photoacoustic imaging of hidden dental caries using visible-light diode laser', *Journal of Applied Clinical Medical Physics*, 24(5), e13935. doi:10.1002/acm2.13935.

Tu, J., Matula, T.J., Bailey, M.R. & Crum, L.A. (2007) 'Evaluation of a shock wave induced cavitation activity both in vitro and in vivo', *Physics in Medicine and Biology*, 52(19), pp. 5933–5944. doi:10.1088/0031-9155/52/19/014.

Tuchin, V.V. (2015) *Tissue optics: light scattering methods and instruments for medical diagnostics*. 3rd ed. Bellingham, WA: SPIE Press.

Wahyuni, E. (2023) Penerapan Pencitraan Fotoakustik untuk Tumor Payudara*: Kajian ex-vivo pada Jaringan Payudara Manusia*. Tesis Magister, Universitas Gadjah Mada, Yogyakarta.

Wang, L. V., & Yao, J. (2016). A practical guide to photoacoustic tomography in the life sciences. *Nature methods*, *13*(8), pp. 627–638. doi:10.1038/nmeth.3925.

Wang, L.V. & Hu, S. (2012) 'Photoacoustic tomography: In vivo imaging from organelles to organs', *Science*, 335(6075), pp. 1458–1462.

Wang, L.V. (2008) 'Tutorial on photoacoustic microscopy and computed tomography', *IEEE Journal on Selected Topics in Quantum Electronics*, 14(1), pp. 171–179. doi:10.1109/JSTQE.2007.913398.

Wang, X., Yue, Y. & Xu, X. (2014) 'Thermoelastic waves induced by pulsed laser heating', in Hetnarski, R.B. (ed.) *Encyclopedia of Thermal Stresses*. Dordrecht: Springer, pp. 5808–5826.

Widodo, P.G.T. & Mitrayana (2026) 'Effect of fiber-guided optical delivery on acoustic response contrast in a photoacoustic system', *Engineering Research Express*, 8, 155334. doi:10.1088/2631-8695/ae945f.

Wong, R.L., Thomas, R.L., & Pouch, J.J. (1979) 'Subsurface structures of solids by scanning photoacoustic microscopy'. *Applied Physics Letters*, 35(5), pp. 368-369.

World Health Organization (2025) *Diabetes*. Available at: https://www.who.int/health-topics/diabetes (Accessed: 14 December 2025).

Xia, J., Yao, J., & Wang, L. V. (2014) 'Photoacoustic tomography: principles and advances'. *Electromagnetic waves (Cambridge, Mass.)*, *147*, pp. 1–22. doi:10.2528/pier14032303.

Xu, M. & Wang, L.V. (2006) 'Photoacoustic imaging in biomedicine', *Review of Scientific Instruments*, 77(4), 041101. doi:10.1063/1.2195024.

Yao, J. & Wang, L.V. (2011) 'Photoacoustic tomography: fundamentals, advances and prospects', *Contrast Media & Molecular Imaging*, 6(5), pp. 332–345.

UNIVERSITAS
GADJAH MADA
Pencitraan Fotoakustik pada Phantom Jaringan Lunak sebagai Model Hiperglikemia dengan Variasi Konsentrasi Glukosa dan Tingkat Dehidrasi
SECUNDA MAHARANI PUTRI, Prof. Dr. Mitrayana, S.Si., M.Si.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Yao, J. & Wang, L.V. (2014) 'Sensitivity of photoacoustic microscopy', *Photoacoustics*, 2(2), pp. 87–101.

Yokota, S., Tanaka, H., Mochizuki, Y., Soga, F., Yamashita, K., Tanaka, Y., Shono, A., Suzuki, M., Sumimoto, K., Mukai, J., Suto, M., Takada, H., Matsumoto, K., Hirota, Y., Ogawa, W. & Hirata, K.I. (2019) 'Association of glycemic variability with left ventricular diastolic function in type 2 diabetes mellitus', *Cardiovascular Diabetology*, 18(1), 166. doi:10.1186/s12933-019-0971-5.

Youssef, P.N., Sheibani, N. & Albert, D.M. (2011) 'Retinal light toxicity', *Eye (London, England)*, 25(1), pp. 1–14. doi:10.1038/eye.2010.149.

Zheng, Y., Ley, S. & Hu, F.B. (2018) 'Global aetiology and epidemiology of type 2 diabetes mellitus and its complications', *Nature Reviews Endocrinology*, 14, pp. 88–98.

Zhong, H., Duan, T., Lan, H., Zhou, M. & Gao, F. (2018) 'Review of low-cost photoacoustic sensing and imaging based on laser diode and light-emitting diode', *Sensors (Switzerland)*, 18(7), pp. 20–22. doi:10.3390/s18072264.