UNIVERSITAS
GADJAH MADA
**ANALISIS VITALITAS LUKA ANTEMORTEM DAN POSTMORTEM DENGAN EKSPRESI MikroRNA-184 YANG DILAKUKAN
SETELAH KEMATIAN PADA TIKUS GALUR WISTAR**
Muhamad Dimas Agung Azhari, dr. Idha Arfianti Wiraagni, M.Sc., Ph.D., Sp.F.M., Subs.PF(K) ; dr. IBGd Surya Putra
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Al Haris, M. S., Rohmah, I. N., & Miranti, I. P. (2019). Perbandingan gambaran histopatologi kulit leher tikus Wistar yang digantung dengan pembedaan periode postmortem. *Jurnal Kedokteran Diponegoro (Diponegoro Medical Journal), 8*(1), 313–322. https://doi.org/10.14710/dmj.v8i1.23346

Arfianti Wiraagni, I., Suhartini, Surya Putra, I. B. G., Widagdo, H., & Suriyanto, R. A. (2021). Materi penunjang ilmu kedokteran forensik dan medikolegal jilid 1. *Gadjah Mada University Press*.

Azevedo, J. A., Carter, B. S., Meng, F., Thompson, R.C. (2016). *The microRNA network is altered in anterior cingulate cortex of patients with unipolar and bipolar depression*. Journal of Psychiatric Research, 82, 58–67.

Bartel, D. P. (2004). MicroRNAs: Genomics, biogenesis, mechanism, and function. *Cell, 116*(2), 281–297. https://doi.org/10.1016/S0092-8674(04)00045-5

Bogomolov, D. V., Fedulova, M. V., Shai, A. N., Pavlova, A. Z., & Zbrueva, Y. V. (2018). Rol' immunogistokhimicheskogo issledovaniia v ustanovlenii prizhiznennosti i vyrazhennosti ognestrel'nykh povrezhdeniĭ miagkikh tkaneĭ [The role of the immunohistochemical investigations in the documentation of intravitality and severity of the gunshot injuries to the soft tissues]. *Sudebno-Meditsinskaya Ekspertiza, 61*(6), 46–47. https://doi.org/10.17116/sudmed20186106146

Bowden, L. G., Byrne, H. M., Maini, P. K., & Moulton, D. E. (2016). A morphoelastic model for dermal wound closure. *Biomechanics and Modeling in Mechanobiology, 15*(3), 663–681. https://doi.org/10.1007/s10237-015-0711-7

Buschmann, C. T., Gahr, P., Tsokos, M., et al. (2010). Clinical diagnosis versus autopsy findings in polytrauma fatalities. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, 18,* 55. https://doi.org/10.1186/1757-7241-18-55

Cao, Q., Xu, W., Chen, W., et al. (2020). *MicroRNA-184 negatively regulates corneal epithelial wound healing via targeting CDC25A, CARM1, and LASP1*. DOI: 10.1186/s40662-020-00202-6

Cecchi, R. (2010). Estimating wound age: Looking into the future. *International Journal of Legal Medicine, 124*(6), 523–536. 10.1007/s00414-010-0505-x.

Chen, L., Guan, Y., Bao, Y., *et al.* (2016). *miR-184 has prognostic implication and is down-regulated during the malignant progression in human astrocytoma*. International Journal of Clinical and Experimental Pathology, 9(3), 3105–3112.

Cockle, D. L., & Bell, L. S. (2015). Human decomposition and the reliability of a "universal" model for post mortem interval estimations. *Forensic Science*

UNIVERSITAS GADJAH MADA
ANALISIS VITALITAS LUKA ANTEMORTEM DAN POSTMORTEM DENGAN EKSPRESI MikroRNA-184 YANG DILAKUKAN SETELAH KEMATIAN PADA TIKUS GALUR WISTAR
Muhamad Dimas Agung Azhari, dr. Idha Arfianti Wiraagni, M.Sc., Ph.D., Sp.F.M., Subs.PF(K) ; dr. IBGd Surya Putra
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

International, 253, 136.e1–136.e9. https://doi.org/10.1016/j.forsciint.2015.05.018

Davis, J. H. (2005). Medicolegal death investigation in forensic pathology. In J. H. Davis (Ed.), *Forensic pathology* (pp. 1–6). San Diego, CA: Elsevier Academic Press. https://doi.org/10.1016/B978-012163090-1/50003-7

Dix, J., & Graham, M. (2000). *Time of death, decomposition, and identification: An atlas* (Forensic Pathology Atlases: Causes of Death Series). CRC Press. https://doi.org/10.4324/9780367806422

Dolinak, D., & Matshes, E. (2005). Blunt force injury in forensic pathology. Dalam C. Dolinak & E. Matshes (Eds.), *Forensic pathology: Principles and practice* (hlm. 121–129). Academic Press. ISBN 9780122199516

Dolinak, D., Matshes, E., & Lew, E. O. (2005). Environmental injury. In D. Dolinak, E. W. Matshes, & E. O. Lew (Eds.), *Forensic pathology: Principles and practice* (pp. 239–257). Elsevier Academic Press. ISBN 9780122199516.

Fatriah, S. H., Sampurna, B., Sugiharto, A. F., & Safitry, O. (2017). *Analisis medikolegal terhadap kriteria derajat luka menurut Kitab Undang-Undang Hukum Pidana* [Tugas akhir, Fakultas Kedokteran, Universitas Indonesia]. Universitas Indonesia.

Grasedieck, S., Scholer, N., Bommer, M., Niess, J. H., Tumani, H., Rouhi, A., Bloehdorn, J., Liebisch, P., Mertens, D., Döhner, H., Buske, C., & Kuchenbauer, F. (2012). Impact of serum storage conditions on microRNA stability. *Leukemia, 26*(11), 2414–2416. https://doi.org/10.1038/leu.2012.106

Grellner, W., Vieler, S., & Madea, B. (2005). Transforming growth factors (TGF-α and TGF-β1) in the determination of vitality and wound age: Immunohistochemical study on human skin wounds. *Forensic Science International, 153*(2–3), 174–180. https://doi.org/10.1016/j.forsciint.2004.08.021

He, L., & Hannon, G. J. (2004). MicroRNAs: Small RNAs with a big role in gene regulation. *Nature Reviews Genetics, 5*(7), 522–531. https://doi.org/10.1038/nrg1379

Henssge, C., & Madea, B. (2004). Estimation of the time since death in the early post-mortem period. *Forensic Science International, 144*(2–3), 167–175. https://doi.org/10.1016/j.forsciint.2004.04.051

Herkutanto. (2005). *Peningkatan kualitas pembuatan Visum et Repertum (VeR) kecederaan di rumah sakit melalui pelatihan dokter Unit Gawat Darurat (UGD). Jurnal Pengabdian Masyarakat dalam Kesehatan (JPMK), 8*(3), 163–169. https://doi.org/10.22146/jmpk.v8i03.2932

Ibrahim, S. F., Ali, M. M., Basyouni, H., & others. (2019). Histological and miRNAs postmortem changes in incisional wound. *Egyptian Journal of Forensic Sciences, 9*(1), 37. https://doi.org/10.1186/s41935-019-0141-7

UNIVERSITAS
GADJAH MADA
**ANALISIS VITALITAS LUKA ANTEMORTEM DAN POSTMORTEM DENGAN EKSPRESI MikroRNA-184 YANG DILAKUKAN
SETELAH KEMATIAN PADA TIKUS GALUR WISTAR**
Muhamad Dimas Agung Azhari, dr. Idha Arfianti Wiraagni, M.Sc., Ph.D., Sp.F.M., Subs.PF(K) ; dr. IBGd Surya Putra
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Indratama, D., & Yenita, Y. (2019). Uji efektivitas antibiotik ekstrak daun belimbing wuluh (*Averrhoa bilimbi* L.) terhadap pertumbuhan *Staphylococcus aureus* secara *in vitro*. *Jurnal Pandu Husada, 1*(1), 61–65. https://doi.org/10.30596/jph.v1i1.3874

Iswara, R. A. F. W., Bhima, S. K. L., & Rohmah, I. N. (2019). Penentuan intravitalitas gantung berdasarkan gambaran histopatologis otak besar mencit Balb/c. *Medica Hospitalia: Journal of Clinical Medicine, 6*(2), 80–85. https://doi.org/10.36408/mhjcm.v6i2.387

Intermasa. (2006). Kitab Undang-Undang Hukum Pidana (KUHP) dalam Himpunan Peraturan Perundang-undangan Republik Indonesia menurut Sistem *Engelbrecht* (hlm. 1710–1743). Jakarta: Intermasa.

Kakimoto, Y., Kamiguchi, H., Ochiai, E., Satoh, F., & Osawa, M. (2015). MicroRNA Stability in Postmortem FFPE Tissues: Quantitative Analysis Using Autoptic Samples from Acute Myocardial Infarction Patients. *PloS one*, *10*(6), e0129338. https://doi.org/10.1371/journal.pone.0129338

Kawulusan, F. R., Kalangi, S. J. R., & Kaseke, M. M. (2014). Gambaran reaksi radang luka antemortem yang diperiksa 1 jam postmortem pada hewan coba. *Jurnal e-Biomedik (eBM), 2*(1). https://doi.org/10.35790/ebm.v2i1.9448

Knight, B., & Saukko, P. (2016). *Knight's forensic pathology* (4th ed.). London, UK: Arnold.

Kondo, T., & Ishida, Y. (2010). Molecular pathology of wound healing. *Forensic Science International, 203*(1–3), 93–98. https://doi.org/10.1016/j.forsciint.2010.07.004

Kusharsamita, R. H., Rohmah, I. N., & Miranti, I. P. (2019). Perbandingan gambaran histopatologi otak tikus Wistar yang digantung dengan pembedaan periode postmortem. *Jurnal Kedokteran Diponegoro (Diponegoro Medical Journal), 8*(1), 468–481. https://doi.org/10.14710/dmj.v8i1.23391

Lang, H., Zhao, F., Zhang, T., et al. (2017). MicroRNA-149 contributes to scarless wound healing by attenuating inflammatory response. *Molecular Medicine Reports, 16*, 2156–2162. https://doi.org/10.3892/mmr.2017.6796

Li, P., He, Q., Luo, C., & Qian, L. (2015). Differentially expressed miRNAs in acute wound healing of the skin: A pilot study. *Medicine, 94*(458). https://doi.org/10.1097/MD.0000000000000458

Liu, R., Ge, L. Z., Zhang, H. D., & others. (2019). Expressions of TGF-β1 and EIIIA-FN after rat skeletal muscle contusion and wound age estimation. *Fa Yi Xue Za Zhi, 35*(2), 154–159. https://doi.org/10.12116/j.issn.1004-5619.2019.02.005

UNIVERSITAS
GADJAH MADA
**ANALISIS VITALITAS LUKA ANTEMORTEM DAN POSTMORTEM DENGAN EKSPRESI MikroRNA-184 YANG DILAKUKAN
SETELAH KEMATIAN PADA TIKUS GALUR WISTAR**
Muhamad Dimas Agung Azhari, dr. Idha Arfianti Wiraagni, M.Sc., Ph.D., Sp.F.M., Subs.PF(K) ; dr. IBGd Surya Putra
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Madea, B., Doberentz, E., & Jackowski, C. (2019). Vital reactions: An updated overview. *Forensic Science International, 305,* 110029. https://doi.org/10.1016/j.forsciint.2019.110029

Maeda, H., Zhu, B. L., Ishikawa, T., & Michiue, T. (2010). Forensic molecular pathology of violent deaths. *Forensic Science International, 203*(1–3), 83–92. https://doi.org/10.1016/j.forsciint.2010.07.024

Mądra, A., Frątczak, K., Grzywacz, A., & Matuszewski, S. (2015). Long-term study of pig carrion entomofauna. *Forensic Science International, 252,* 1–10. https://doi.org/10.1016/j.forsciint.2015.04.013

Michael, S. J., & Ramsay, D. A. (2007). *Common problems for the pathologist in forensic pathology of trauma.* Totowa, NJ: Humana Press.

Muhtadli. (2022). Sanksi pidana terhadap tindak pidana penganiayaan yang mengakibatkan luka-luka. *Jurnal Hukum Legalita, 2*(1), 1–17

Nerchan, E., Mallo, J. F., & Mallo, N. T. S. (2015). Pola Luka Pada Kematian Akibat Kekerasan Tajam Di Bagian Ilmu Kedokteran Forensik Dan Medikolegal Rsup Prof. Dr. R. D. Kandou Manado Periode 2013. *E-Clinic*, *3*(2). Https://Doi.Org/10.35790/Ecl.V3i2.8383

Neri, M., Fabbri, M., D'Errico, S., & others. (2019). Regulation of miRNAs as new tool for cutaneous vitality lesions demonstration in ligature marks in deaths by hanging. *Scientific Reports, 9,* 20011. https://doi.org/10.1038/s41598-019-56682-7

Novita, N., Agustina, H., Hernowo, B. S., & Hassan, A. H. (2015). Analysis of fibronectin and TGF-β1 immunoexpression to determination of wound vitality in Wistar rats (*Rattus norvegicus*). *Jurnal Medika dan Health, 1*(1). https://doi.org/10.28932/jmh.v1i1.499.

Ozgok Kangal, M. K., & Regan, J. P. (2023). Wound healing. In *StatPearls*. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK574573/

Pasaribu, R. S., Auerkari, E. I., Suhartono, A. W., & Auerkari, P. (2023). A small RNA, microRNA as a potential biomolecular marker to estimate post mortem interval in forensic science: a systematic review. *International journal of legal medicine*, *137*(5), 1313–1325. https://doi.org/10.1007/s00414-023-03015-z

Peyron, P. A., Colomb, S., Becas, D., & others. (2021). Cytokines as new biomarkers of skin wound vitality. *International Journal of Legal Medicine, 135*(6), 2537–2545. https://doi.org/10.1007/s00414-021-02659-z.

Pfeifer, R., Tarkin, I. S., Rocos, B., & Pape, H. C. (2009). Patterns of mortality and causes of death in polytrauma patients—Has anything changed? *Injury, 40*(9), 907–911. https://doi.org/10.1016/j.injury.2009.05.006.

UNIVERSITAS
GADJAH MADA
**ANALISIS VITALITAS LUKA ANTEMORTEM DAN POSTMORTEM DENGAN EKSPRESI MikroRNA-184 YANG DILAKUKAN
SETELAH KEMATIAN PADA TIKUS GALUR WISTAR**
Muhamad Dimas Agung Azhari, dr. Idha Arfianti Wiraagni, M.Sc., Ph.D., Sp.F.M., Subs.PF(K) ; dr. IBGd Surya Putra
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Qiu, X., Li, Y., Zhang, L., & Wang, J. (2020). Expression levels and significance of miR-184 and miR-126 in burned rats. *PMC*. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6591497/.

Ross K. (2021) MiR equal than others: MicroRNA enhancement for cutaneous wound healing. *J Cell Physiol*. 236(12):8050-8059. doi:10.1002/jcp.30485).

Sampaio-Silva, F., Magalhães, T., Carvalho, F., Dinis-Oliveira, R. J., & Silvestre, R. (2013). Profiling of RNA degradation for estimation of post mortem interval. *PLoS ONE, 8*(2), e56507. https://doi.org/10.1371/journal.pone.0056507.

Shandu-Omukunyi, N. (2023). *English first additional language learning and teaching with digital resources*. South African Computer Journal, 35(1), 184–200. https://doi.org/10.18489/sacj.v35i1.1109.

Schmidt, U., Oramary, D., Kamin, K., Buschmann, C. T., & Kleber, C. (2020). Synergistic effects of forensic medicine and traumatology: Comparison of clinical diagnosis and autopsy findings in trauma-related deaths. *World Journal of Surgery, 44*(4), 1137–1148. https://doi.org/10.1007/s00268-019-05347-7

Shrivastava, S., Sharma, S., Shrivastava, N., & Shukla, S. (2023). Estimation of age of abrasion by gross examination at autopsy: A cross-sectional study. *Indian Journal of Forensic Medicine and Toxicology, 17*(3), 109–113. https://doi.org/10.37506/ijfmt.v17i3.19104

Sheta, A. A., Suliman, H. S., & Megahed, H. M. (2009). Antemortem and postmortem estimation of skin wound age in rats: Biochemical study. *Bulletin of the Alexandria Faculty of Medicine, 45*(1), 241–251.

Tien, H., Chu, P. T. Y., & Brenneman, F. (2004). Causes of death following multiple trauma. *Major Trauma, 18*(4), 304–310. https://doi.org/10.1016/j.cuor.2004.04.006.

Turner, P. V., Brabb, T., Pekow, C., & Vasbinder, M. A. (2011). Administration of substances to laboratory animals: Routes of administration and factors to consider. *Journal of the American Association for Laboratory Animal Science, 50*(5), 600–613. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3106331/

Vos, T., Lim, S. S., Abbafati, C., & others. (2020). Global burden of 369 diseases and injuries in 204 countries and territories, 1990–2019: A systematic analysis for the Global Burden of Disease Study 2019. *The Lancet, 396*(10258), 1204–1222. https://doi.org/10.1016/S0140-6736(20)30925-99

Wallace, H. A., Basehore, B. M., & Zito, P. M. (2023). Wound healing phases. In *StatPearls*. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK557518/

UNIVERSITAS
GADJAH MADA
**ANALISIS VITALITAS LUKA ANTEMORTEM DAN POSTMORTEM DENGAN EKSPRESI MikroRNA-184 YANG DILAKUKAN
SETELAH KEMATIAN PADA TIKUS GALUR WISTAR**
Muhamad Dimas Agung Azhari, dr. Idha Arfianti Wiraagni, M.Sc., Ph.D., Sp.F.M., Subs.PF(K) ; dr. IBGd Surya Putra
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Wang, J. L., Wang, X., Yang, D., & Shi, W. J. (2016). The expression of microRNA-155 in plasma and tissue is matched in human laryngeal squamous cell carcinoma. *Yonsei Medical Journal, 57*(2), 298–305. https://doi.org/10.3349/ymj.2016.57.2.298

Wang, T., Feng, Y., Sun, H., Zhang, L., Hao, L., Shi, C., Wang, J., Li, R., Ran, X., Su, Y., & others. (2012). miR-21 regulates skin wound healing by targeting multiple aspects of the healing process. *The American Journal of Pathology, 181*(6), 1911–1920. https://doi.org/10.1016/j.ajpath.2012.08.003

Yang, X., Wang, J., Guo, S. L., Fan, K. J., Li, J., Wang, Y. L., Teng, Y., & Yang, X. (2011). miR-21 promotes keratinocyte migration and re-epithelialization during wound healing. *International Journal of Biological Sciences, 7*(5), 685–690. https://doi.org/10.7150/ijbs.7.685

Yao, Y., Huang, J. J., Jin, X., & others. (2020). Function of IL-33 in wound age estimation of skin wounds in mice. *Fa Yi Xue Za Zhi, 36*(2), 192–198. https://doi.org/10.12116/j.issn.1004-5619.2020.02.009

Yu, J., Ryan, D. G., Getsios, S., Oliveira-Fernandes, M., Fatima, A., & Lavker, R. M. (2008). *MicroRNA-184 antagonizes microRNA-205 to maintain SHIP2 levels in epithelia*. Proceedings of the National Academy of Sciences of the United States of America, 105(49), 19300–19305. https://doi.org/10.1073/pnas.0803992105

Zhang, K., Cheng, M., Xu, J., & others. (2022). MiR-711 and miR-183-3p as potential markers for vital reaction of burned skin. *Forensic Science Research, 7*(3), 503–509. https://doi.org/10.1080/20961790.2020.1719454

Zubakov, D., Boersma, A. W., Choi, Y., & others. (2010). MicroRNA markers for forensic body fluid identification obtained from microarray screening and quantitative RT-PCR confirmation. *International Journal of Legal Medicine, 124*(3), 217–226. https://doi.org/10.1007/s00414-009-0391-8