DAFTAR PUSTAKA

Abbasi, N., Hamlet, S., Love, R.M., Nguyen, N.T., 2020. Porous scaffolds for bone regeneration. Journal of Science: Advanced Materials and Devices. https://doi.org/10.1016/j.jsamd.2020.01.007

Abd Alrazaq Hassan, M., MH AL-Ghaban, N., 2019. Histological Evaluation of the Effect of Local Application of Grape Seed Oil on Healing Process of Extracted Tooth Socket in Rabbits. Diyala Journal of Medicine 17, 70–84. https://doi.org/10.26505/DJM.17024670515

Agustina, N., Dwipura Hasbullah, I., Uli Arta Panjaitan, F., Hasan Aman, G., 2018. The Effect of Hydoxyapatite Xenograft Of Haruan Fish (Channa Striata) Bone On The Number Of Osteoblast And Osteoclast (In Vivo Study On Mandibular Bone Of Male Guinea Pigs). Dentino III, 116–121.

Anupama, A.D., Udduttula, A., Jaiswal, A.K., 2023. Unveiling the secrets of marine—derived fucoidan for bone tissue engineering—A review. Front Bioeng Biotechnol 10. https://doi.org/10.3389/fbioe.2022.1100164

Ara Uj O, M.G., Ev E R S O, C.L., Silva, N.O., 2015. Alveolar socket healing: what can we learn?

Arun, A., Agarwal, M., Kaushik, M., Mudassar, S., 2021. Socket preservation using a bio-scaffold material-A Case Report. Jetir 8, d728–d737.

Ashman, A., 2000. Postextraction Ridge Preservation Using a synthetic alloplast. Implant Dent 9, 168–170.

Aufan, M.R., Daulay, A., Indriani, D., Nuruddin, A., Purwasasmita, 2021. Sintesis Scaffold Alginat- Kitosan-Karbobat Apatit sebagai Bone Graft menggunakan metode Freeze drying. Jurnal Biofisika 8, 16–24.

Avila-ortiz, G., Elangovan, S., Kramer, K., Blanchette, D., Dawason, D.V., 2014. Effect of alveolar ridge preservation after tooth extraction: a systematic review and meta-analysis. J Dent Res 93, 950–958.

Bhattacharjee, P, Kundu, B., Naskar, D., Kim, H., Maiti, T., Kundu, S., 2017. Silk scaffolds in bone tissue engineering: An overview. J. actbio 09–027.

Bhattacharjee, Promita, Kundu, B., Naskar, D., Kim, H.W., Maiti, T.K., Bhattacharya, D., Kundu, S.C., 2017. Silk scaffolds in bone tissue engineering: An overview. Acta Biomater 63, 1–17. https://doi.org/10.1016/j.actbio.2017.09.027

Boyne, P.J., 1996. Osseous repair of the postextraction alveolus in man, in: Oral Surgery, Oral Medicine, Oral Pathology. pp. 805–807.

Broughton, G., E. Jenis, J., E. Attinger, C., 2006. The basic science of bone healing. Plastic and Recontructive Surgery 117, 12s–18s.

Buenzli, P.R., 2015a. Osteocytes as a record of bone formation dynamics: A mathematical model of osteocyte generation in bone matrix. J Theor Biol 364, 418–427. https://doi.org/10.1016/j.jtbi.2014.09.028

Buenzli, P.R., 2015b. Osteocytes as a record of bone formation dynamics: A mathematical model of osteocyte generation in bone matrix. J Theor Biol 364, 418–427. https://doi.org/10.1016/j.jtbi.2014.09.028

Cao, W., Helder, M.N., Bravenboer, N., Wu, G., Jin, J., ten Bruggenkate, C.M., Klein-Nulend, J., Schulten, E.A.J.M., 2020. Is There a Governing Role of Osteocytes in Bone Tissue Regeneration? Curr Osteoporos Rep. https://doi.org/10.1007/s11914-020-00610-6

Cardoso, L., Herman, B.C., Laudier, O., Majeska, R.J., Schaffler, M.B., 2009. Osteocyte Apoptosis Controls Activation of Intracortical Resorption in Response to Bone Fatigue | Enhanced Reader. JBMR 24, 597–600.

Carl, E.M., Jon, B.S., 2020. Tooth Extraction, Socket Grafting, and Barrier Membrane Bone Regeneration [WWW Document]. Pocket dentistry: fastest clinical dentistry insight engine.

Chan, B.P., Leong, A.K.W., 2008. Scaffolding in tissue engineering: general approaches and tissue-specific considerations. Eur Spine J 17, S467–S479. https://doi.org/10.1007/s00586-008-0745-3

Crouch, S.P.M., Kozlowski, R., Slater, K.J., Fletcher, J., 1993. The use of ATP bioluminescence as a measure of cell proliferation and cytotoxicity, Journal of Immunological Methods.

Delaisse, J.-M., 2014. The reversal phase of the bone-remodeling cycle: cellular prerequisites for coupling resorption and formation. Bonekey Rep 3. https://doi.org/10.1038/bonekey.2014.56

Devi G.V, Y., Nagendra, A.H., Shenoy P, S., Chatterjee, K., Venkatesan, J., 2022. Fucoidan-Incorporated Composite Scaffold Stimulates Osteogenic Differentiation of Mesenchymal Stem Cells for Bone Tissue Engineering. Mar Drugs 20. https://doi.org/10.3390/md20100589

Devlin, H., Sloan, P., 2002. Early bone healing events in the human extraction socket. Int J Oral Maxillofac Surg 31, 641–645. https://doi.org/10.1054/ijom.2002.0292

Dimova, C., 2014. Socket preservation procedure after tooth extraction, in: Key Engineering Materials. Trans Tech Publications Ltd, pp. 325–330. https://doi.org/10.4028/www.scientific.net/KEM.587.325

Djuwita, I., Amalia Pratiwi, I., Winarto, A., Mustafa Sabri, dan, Anatomi, B., Embriologi, dan, Anatomi, D., Farmakologi Fakultas Kedokteran Hewan, dan, Pertanian Bogor, I., Studi Pendidikan Dokter Hewan Fakultas Kedokteran Hewan Institut Pertanian Bogor, P., 2012. The Proliferation and Differentiation Rate of Rat Bone Cells in In Vitro Culture Medium Containing Cissus quadrangula Salisb. Extract. Jurnal Kedokterean Hewan 6, 75–80.

Dole, N.S., 2015. Genetic Determinants of Skeletal Diseases: Role of microRNAs [WWW Document]. URL http://digitalcommons.uconn.edu/dissertations/763

Dorlan's illustrated medical dictionary, 28th ed, 2014. W.B. Saunders, Philadephia.

Ellis, E.I., 2003. Surgical Reconstruction of Defect of The Jaws, in: Peterson, L., Edward III, Hupp, James, R., Tucker, Myron, R. (Eds.), Oral and Maxillofacial Surgery. Mosby, St. Louis, pp. 647–655.

Eroschenco, V., 2003. Atlas Histology di Fiore, 9th ed. EGC, Jakarta.

Eshwar, S., Kranthi, K., Manvi, S., Ashok, P., Surana, Y.S., Sangeetha, R., Jain, V., 2021. Histological Assessment of Fucoidan Gelatine Chitosan Compound Injectable Hydrogel for Bone Regeneration in Wistar Rats. Indian J Pharm Sci 83, 1254–1260. https://doi.org/10.36468/pharmaceutical-sciences.880

Farzin, A., Bahrami, N., Mohamadnia, A., Mousavi, S., Gholami, M., Ai, J., Moayeri, R.S., 2019. Scaffolds in Dental Tissue Engineering: A Review. Arch Neurosci 7. https://doi.org/10.5812/ans.97014

Fee, L., 2017. Socket preservation. Br Dent J 222, 579–582.

Fee, L, 2017. Socket preservation. Br Dent J 222, 1–5.

Florencio-Silva, R., Sasso, G.R.D.S., Sasso-Cerri, E., Simões, M.J., Cerri, P.S., 2015a. Biology of Bone Tissue: Structure, Function, and Factors That Influence Bone Cells. Biomed Res Int. https://doi.org/10.1155/2015/421746

Florencio-Silva, R., Sasso, G.R.D.S., Sasso-Cerri, E., Simões, M.J., Cerri, P.S., 2015b. Biology of Bone Tissue: Structure, Function, and Factors That Influence Bone Cells. Biomed Res Int. https://doi.org/10.1155/2015/421746

Fonseca, R., 2000. Oral and Maxillofacial Surgery. Saunders, Philadelphia.

Freshey, R., 2012. Culture of animal cell, 4th ed. Wilwy-Liss, New York.

G. Avila-Ortiz, Elangovan, S., Kramer, K.W.O., Blanchette, D., Dawson, D.V., 2014. Effect of alveolar ridge preservation after tooth extraction: a sytematic review and meta-analysis. J Dent Res 93, 950–958.

Gómez-Cerezo, N., Sánchez-Salcedo, S., Izquierdo-Barba, I., Arcos, D., Vallet-Regí, M., 2016. In vitro colonization of stratified bioactive scaffolds by pre-osteoblast cells. Acta Biomater 44, 73–84. https://doi.org/10.1016/j.actbio.2016.08.014

Gong, T., Xie, J., Liao, J., Zhang, T., Lin, S., Lin, Y., 2015. Nanomaterials and bone regeneration. Bone Research 3, 1–7.

Goswami, A., Ghorui, T., Bandyopadhyay, R., Sarkar, A., Ray, A., 2020. A General Overview of Post Extraction Complications-Prevention, Management and Importance of Post Extraction Advice. Fortune Journal of Health Sciences 03. https://doi.org/10.26502/fjhs014

Gough, J.E., Jones, J.R., Hench, L.L., 2004. Nodule formation and mineralisation of human primary osteoblasts cultured on a porous bioactive glass scaffold. Biomaterials 25, 2039–2046. https://doi.org/10.1016/j.biomaterials.2003.07.001

Guarnieri, R., Stefanelli, L., Angelis, F. De, Mencio, F., Pompa, G., Di Carlo, S., 2017. Extraction socket preservation using porcine-derived collagen membrane alone or associated with porcin-derived bone. Clinical results randomized controlled study. J Oral Maxillofac Res 1–10.

Hanafiah, O.A., Sofia, D., Dohude, G.A., Satria, D.S., Livita, L., Moudy, N.S., Rahma, R., 2022. Effects of 3% binahong (Anredera cordifolia) leaf extract gel on alveolar bone healing in post-extraction tooth socket wound in Wistar rats (Rattus norvegicus). F1000Res 10, 1–24.

Hao, Y., Zhao, W., Zhang, L., Zeng, X., Sun, Z., Zhang, D., Shen, P., Li, Z., Han, Y., Li, P., Zhou, Q., 2020. Bio-multifunctional alginate/chitosan/fucoidan sponges with enhanced angiogenesis and hair follicle regeneration for promoting full-thickness wound healing. Mater Des 193. https://doi.org/10.1016/j.matdes.2020.108863

Hinz, B., 2006. Master's and servants of the force: The role of matrix adhesions in myofibroblast force perception and transmission. Eur J Cell Biol. https://doi.org/10.1016/j.ejcb.2005.09.004

Hutmacher, D.W., 2000. Scaffolds in tissue engineering bone and cartilage, Biomaterials.

Indrani, J., Budianto, E., 2013. A study of extraction and characterization of alginates obtained from brown macroalgae Sargassum duplicatum and Sargassum crassifolium from Indonesia. Dent. J (Maj. Ked. Gigi) 46, 65–70.

Jafer, M.A., Salem, R.M., Hakami, F.B., Ageeli, R.E., Alhazmi, T.A., Bhandi, S., Patil, S., 2022. Techniques for Extraction Socket Regeneration for Alveolar Ridge Preservation. Journal of Contemporary Dental Practice 23, 245–250. https://doi.org/10.5005/jp-journals-10024-3247

Kamadjaja, M.J.K., Gatia, A.N.S., Novitananda, A., Maudina, L., Laksono, H., Dahlan, A., Tumali, B.A.S., Ari, M.D.A., 2021. Evaluation of osteogenic properties after application of hydroxyapatite-based shells of Portunus pelagicus. Dent J 54, 119–123. https://doi.org/10.20473/J.DJMKG.V54.I3.P119-123

Kattimani DV, Kondaka S, Lingamaneni K, 2016. Hydroxyapatite—Past, Present, and Future in Bone Regeneration. Bone Tissue Regen Insights 1, 9.

Khalil RA, Van Breemen C, 1995. Mechanisms of calcium mobilization and homeostasis in vascular smooth muscle and their relevance to hypertension, in: Laragh JH, Brenner BM, Eds. Hypertension: Pathophysiology, Diagnosis and Management. Raven Press, New York, pp. 523–540.

Kim, Y.K., Ku, J.-K., 2020. Extraction socket preservation. J Korean Assoc Oral Maxillofac Surg 46, 435–439.

Klawitter, J., Hulbert, S.F., 1971. Application of Porous Ceramics for The Attachment of Load Bearing Internal Orthopedic Application. J. BIOMED. MATER. RES. SYMPOSIUM NO 24, 483–501.

Lawler, W., Ahmed, A., Hume, J., 2002. Essential pathologi for dental student, in: Disadur, D.A. (Ed.), Buku Pintar Patologi untuk Kedokteran Gigi. EGC, Jakarta.

Le, B., Yip, F.F.K., 2019. Healing of the Extraction Site. Oral Maxillofac Surg 1–10.

Leeson, C., Leeson, S., Paparo, A., 1989. Buku Ajar Histologi. EGC, Jakarta.

Liu, Y., Fang, Y., 2022. Three-dimensional mesenchymal stem cell laden scaffold of icariin sustained-release for bone regeneration. Turkish Journal of Biology 46, 414–425. https://doi.org/10.55730/1300-0152.2627

Mano, F., Cipolla, L., Rodrigues, J.M.M., Sashiwa, H., Zhang, H., Wu, X., Quan, L., Ao, Q., 2022. Characteristics of Marine Biomaterials and Their Applications in Biomedicine. https://doi.org/10.3390/md20060372

Me, / / T, Royaldentistrylibrary, /, 2010. Implant DentIstry a practical approach, second. ed. Mosby Elsevier, Florida.

Medical Association, A., 2016. Opioid Prescribing After Surgical Extraction of Teeth in Medicaid Patients, 2000-2010. https://doi.org/10.1001/jama.2015.19058

Moran, I.J., Richardson, L., Heliotis, M., Bewick, A., 2017. A bleeding socket after tooth extraction. BMJ (Online). https://doi.org/10.1136/bmj.j1217

Moroni, L., Nandakumar, A., de Groot, F.B., van Blitterswijk, C.A., Habibovic, P., 2015. Plug and play: Combining materials and technologies to improve bone regenerative strategies. J Tissue Eng Regen Med 9, 745–759. https://doi.org/10.1002/term.1762

Naini, A., Clarissa Astiasari, Muhammad Nurul Amin, 2022. Socket Preservation with Hydroxyapatite Gipsum Puger Scaffold and Aloe vera on Fibroblast and Type 1 Collagen Cells. DENTA 16, 33–41. https://doi.org/10.30649/denta.v16i1.6

Nanci, A., 2003. Ten Cate's Oral Histopatology: development, structure, and funtion, 6th ed. Mosby, St. Louis.

Nayak, A.K., Mohanta, B.C., Hasnain, M.S., Hoda, M.N., Tripathi, G., 2020. Alginate-based scaffolds for drug delivery in tissue engineering, in: Alginates in Drug Delivery. Elsevier, pp. 359–386. https://doi.org/10.1016/B978-0-12-817640-5.00014-5

Nizar, M., Kresnoadi, U., Soekobagiono, S., 2020. The effect of propolis extract and bovine bone graft combination on the number of osteoclast and osteoblast as an effort to preserve post-extraction socket (on Cavia cobaya). Dental Journal (Majalah Kedokteran Gigi) 53, 10–15. https://doi.org/10.20473/j.djmkg.v53.i1.p10-15

Nurhikmawati, F., Manurung, M., Laksmiwati, A.A.I.A.M., 2014. Penggunaan kitosan dari limbah kulit udang sebagai inhibitor keasaman tuak. Jurnal Kimia 8, 191–197.

Olaitan, O.H., Aderibigbe, O., Komolafe, Owotade, F.J., Saka, O.S., 2019. Histologic Assessment of Extraction Sockets Following Tooth Extraction: Suitability of a Rabbit Model. Nig J Dent Res 4, 1–4.

Pagni, G., Pellegrini, G., Giannobile, W. V., Rasperini, G., 2012. Postextraction alveolar ridge preservation: Biological basis and treatments. Int J Dent. https://doi.org/10.1155/2012/151030

Pamungkas, S., Nardiatmo, S., Mapangara, S., Jais, A.I., 2019. Socket preservation after tooth extraction : a systematic review Mempertahankan soket setelah pencabutan gigi: tinjauan sistematik, Makassar Dent J.

Peng, Q., Tang, Z., Liu, O., Peng, Z., 2015. Rapid prototyping-assisted maxillofacial reconstruction. Ann Med. https://doi.org/10.3109/07853890.2015.1007520

Pietrokovski, J., Massler, M., 1967. Alveolar ridge resorption following tooth extraction. J. Pros Dent 21–24.

Prahasanti, C., Arini, N.L., Wulan, K.D., Hendro, O.V., Wijaksana, I.K.E., Ulfah, N., Kusumawardani, B., Hari, P., Abullais, S.S., 2023. The expression of BMP4 and FGF2 in Wistar rats (Rattus norvegicus) post application of gourami fish (Osphronemus goramy) collagen. Dental Journal (Majalah Kedokteran Gigi) 56, 115–121. https://doi.org/10.20473/j.djmkg.v56.i2.p115-121

Qian, Z., Dai, M., Zheng, X., Xu, X., Kong, X., Li, X., Guo, G., Luo, F., Zhao, X., Wei, Y.Q., 2009. Chitosan-alginate sponge: Preparation and application in curcumin delivery for dermal wound healing in rat. J Biomed Biotechnol 2009. https://doi.org/10.1155/2009/595126

Rahmany, M.B., Van Dyke, M., 2013. Biomimetic approaches to modulate cellular adhesion in biomaterials: A review. Acta Biomater. https://doi.org/10.1016/j.actbio.2012.11.019

Rodriguez-Jasso, R.M., Mussatto, S.I., Pastrana, L., Aguilar, C.N., Teixeira, J.A., 2011. Microwave-assisted extraction of sulfated polysaccharides (fucoidan) from brown seaweed. Carbohydr Polym 86, 1137–1144. https://doi.org/10.1016/j.carbpol.2011.06.006

Rodríguez-Vázquez, M., Vega-Ruiz, B., Ramos-Zúñiga, R., Saldaña-Koppel, D.A., Quiñones-Olvera, L.F., 2015. Chitosan and Its Potential Use as a Scaffold forTissue Engineering in Regenerative Medicine. Biomed Res Int 1–15.

RT, S., MM, J., KM, K., 2018. Graft Tulang & Material Pengganti Tulang, Karakteristik dan Strategi Aplikasi Klinis, 1st ed. Airlangga University Press, Surabaya.

Ru, J.-Y., Wang, Y., 2020. Osteocyte apoptosis: the roles and key molecular mechanisms in resorption-related bone diseases | Enhanced Reader. Cell Death Dis 11, 1–25.

Sahoo, R., Biswal, T., 2021. Alginate and its application to tissue engineering. SN Appl Sci 3, 1–20.

Salgado, A.J., Coutinho, O.P., Reis, R.L., 2004. Bone tissue engineering: State of the art and future trends. Macromol Biosci. https://doi.org/10.1002/mabi.200400026

Saravanan, S., Leena, R.S., Selvamurugan, N., 2016a. Chitosan based biocomposite scaffolds for bone tissue engineering. Int J Biol Macromol 93, 1354–1365. https://doi.org/10.1016/j.ijbiomac.2016.01.112

Saravanan, S., Leena, R.S., Selvamurugan, N., 2016b. Chitosan based biocomposite scaffolds for bone tissue engineering. Int J Biol Macromol 93, 1354–1365. https://doi.org/10.1016/j.ijbiomac.2016.01.112

Schaffler, M.B., Cheung, W.Y., Majeska, R., Kennedy, O., 2014. Osteocytes: Master orchestrators of bone. Calcif Tissue Int. https://doi.org/10.1007/s00223-013-9790-y

Schropp, L., Wenzel, A., Kostopoulos, L., Karring, T., 2003. Bone healing and soft tissue contour changes following single-tooth extraction: A clinical and radiographic 12-month prospective study. Int J Periodontics Restorative Dent 3, 313–323.

Sezer, A.D., Cevher, E., Hatipoğlu, F., Oğurtan, Z., Baş, A.L., Akbuğa, J., 2008. Preparation of fucoidan-chitosan hydrogel and its application as burn healing accelerator on rabbits. Biol Pharm Bull 31, 2326–2333. https://doi.org/10.1248/bpb.31.2326

Singh, S., Young, A., McNaught, C.E., 2017. The physiology of wound healing. Surgery (United Kingdom). https://doi.org/10.1016/j.mpsur.2017.06.004

Sinurat, E., Kusumawati, R., 2017. Optimasi Metode Ekstraksi Fukoidan dari Rumput Laut Cokelat Sargassum binderi Sonder. Jurnal Pascapanen dan Bioteknologi Kelautan dan Perikanan 12. https://doi.org/10.15578/jpbkp.v12i2.388

Sjuhada Oki, A., Amalia, N., Tantiana, 2020. Wound healing acceleration in inflammation phase of post-tooth extraction after aerobic and anaerobic exercise. Sci Sports 35, 168.e1-168.e6. https://doi.org/10.1016/j.scispo.2019.06.001

Stenhouse, W.D., Lee, D., A.J.E., C., 2003. Textbook for general and oral surgery. Churchill Livingstone, UK.

Sularsih, Soeprijanto, 2012. The Comparison of Osteoblast Cell Number in Bone Healing Between The Use of Kitosan Gel 1% and 2%. Jurnal Material Kedokteran Gigi 1, 145--152.

Sun, J., Tan, H., 2013. Alginate-based biomaterials for regenerative medicine applications. Materials. https://doi.org/10.3390/ma6041285

Turco, G., Porrelli, D., Marsich, E., Vecchies, F., Lombardi, T., Stacchi, C., Lenarda, R. Di, 2018. Three-dimensional bone substitutes for oral and maxillofacial surgery: Biological and structural characterization. J Funct Biomater 9. https://doi.org/10.3390/jfb9040062

Udeabor, S.E., Halwani, M.A., Alqahtani, S.A., Alshaiki, S.A., Alqahtani, A.M., Alqhatani, S.M., 2017. Effect of Altitude and Relative Hypoxia on Post Extraction Wound Healing: A Clinical Pilot Study. IJTDH 25, 1–7. https://doi.org/10.9734/IJTDH/2017/36105

V. K., A.D., Udduttula, A., Jaiswal, A.K., 2023. Unveiling the secrets of marine—derived fucoidan for bone tissue engineering—A review. Front Bioeng Biotechnol 10. https://doi.org/10.3389/fbioe.2022.1100164

Valente, J.F.A., Valente, T.A.M., Alves, P., Ferreira, P., Silva, A., Correia, I.J., 2012. Alginate based scaffolds for bone tissue engineering. Materials Science and Engineering C 32, 2596–2603. https://doi.org/10.1016/j.msec.2012.08.001

Venkatesan, J, Bhatnagar, I., Kim, S., 2014. Chitosan-Alginate Biocomposite Containing Fucoidan for Bone Tissue Engineering. Mar Drugs 12, 300–316.

Venkatesan, Jayachandran, Bhatnagar, I., Kim, S.K., 2014. Chitosan-alginate biocomposite containing fucoidan for bone tissue engineering. Mar Drugs 12, 300–316. https://doi.org/10.3390/md12010300

Venkestan, J., Bhatnagar, I., Kim, S.-K., 2014. Chitosan-Alginate Biocomposite Containing Fucoidan for Bone Tissue Engineering | Enhanced Reader. Mar. Drugs 12, 300–2016.

Zhao, R., Yang, R., R. Cooper, P., Khurshid, Z., Shavandi, A., Ratnayake, J., 2021. Bone graft and substitutes in dentistry. Molecules 26, 1–27.

Zubaidah, N., Kurnati, S., Febrianti, N.N., Nurdianto, A.R., Oktaria, W., Luthfi, M., 2022. The pattern of osteocyte in dental socket bone regenerative induced by hydroxyapatite bovine tooth graft. Bali Medical Journal 11, 1489–1493. https://doi.org/10.15562/bmj.v11i3.3844

LAMPIRAN

Lampiran 1. Lembar Etik Penelitian

KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI
UNIVERSITAS HASANUDDIN
FAKULTAS KEDOKTERAN GIGI
RUMAH SAKIT GIGI DAN MULUT
KOMITE ETIK PENELITIAN KESEHATAN
Sekretariat : Lantai 2, Gedung Lama RSGM Unhas
JL.Kandea No. 5 Makassar
Contact Person: drg. Muhammad Ikbal, Sp.Pros/Nur Aedah AR TELP. 081342971011/08114919191

REKOMENDASI PERSETUJUAN ETIK

Nomor: 0098/PL.09/KEPK FKG-RSGM UNHAS/2023

Tanggal: 07 Juni 2023

Dengan ini menyatakan bahwa protokol dan dokumen yang berhubungan dengan protokol berikut ini telah mendapatkan persetujuan etik:

No. Protokol	UH 17120837	No Protokol Sponsor	
Peneliti Utama	Drg. Ibriana	Sponsor	Pribadi
Judul Peneliti	Efektivitas Scaffold Kitosan Alginat Fucoidan terhadap Jumlah Osteocyte dan Osteoclast pada Tindakan Socket Preservation Gigi Marmut (Cavia Cobaya)		
No. Versi Protokol	1	Tanggal Versi	25 Mei 2023
No. Versi Protokol		Tanggal Versi	
Tempat Penelitian	1. Laboratorium Biofarmaka Universitas Hasanuddin, 2. Laboratorium Terpadu Fakultas MIPA Universitas Hasanuddin, 3. Klinik Hewan La Costae, 4. Labotatorium Patologi Anatomi Fakultas Kedokteran Universitas Hasanuddin, 5. Laboratorium Hispatologi RSPTN Universitas Hasanuddin		
Dokumen Lain			
Jenis Review	☐ Exempted ☒ Expedited ☐ Fullboard	Masa Berlaku 07 Juni 2023-07 Juni 2024	Frekuensi Review Lanjutan
Ketua Komisi Etik Penelitian	Nama: Dr. drg. Marhamah, M.Kes	Tanda Tangan	Tanggal
Sekretaris Komisi Etik Penelitian	Nama: drg. Muhammad Ikbal, Sp.Pros	Tanda Tangan	Tanggal

Kewajiban peneliti utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum diimplementasikan
- Menyerahkan laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan lapor SUSAR dalam 72 jam setelah peneliti utama menerima laporan.
- Menyerahkan laporan kemajuan (*progress report)* setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah.
- Menyerahkan laporan akhir setelah penelitian berakhir.
- Melaporkan penyimpangan dari protokol yang disetujui (*protocol deviation/violation)*
- Mematuhi semua aturan yang berlaku.

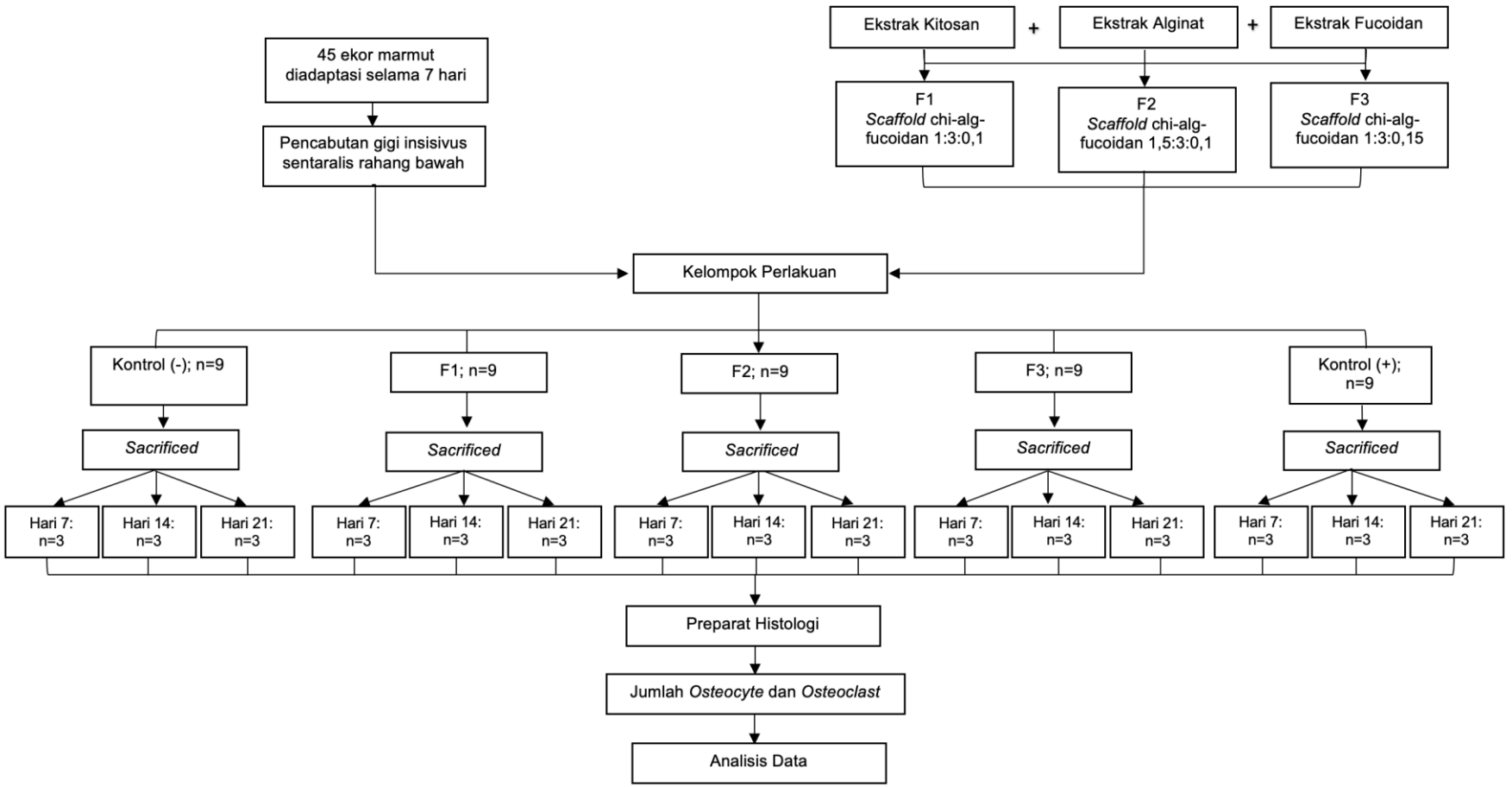
Lampiran 2.

Lembar Perbaikan Ujian Seminar Hasil

Nama ; Ibriana
NIM : J035211003
Tanggal Ujian : 22 Maret 2024
Judul : Efektivitas *Scaffold Chitosan*, Alginat dan *Fucoidan* Terhadap Jumlah *Osteocyte* dan *Osteoclast* Pada Tindakan *Socket Preservation* Gigi Marmut (*Cavia Cobaya*)

No.	Nama Dosen Penguji/ Pembimbing	Koreksi Tesis	Paraf
1.	Dian Setiawati, drg., Sp. Perio., Subsp. M.P (K) (Penguji I)	1. Perbaiki spasi yang tidak konsisten dan penulisan yang masih salah. **Jawaban:** - Penulis telah memperbaiki kata dengan penulisan yang salah. - Spasi telah disesuaikan dengan pedoman tugas akhir mahasiswa Universitas Hasanuddin.	
2.	Prof. Dr. Nurlindah Hamrun, drg., M. Kes (Penguji II)	1. Menambahkan perbandingan konsentrasi *scaffold* Formula 1, 2 dan 3 pada bagain kesimpulan. **Jawaban:** - Penulis telah menambahkan konsentrasi masing-masing formula.	

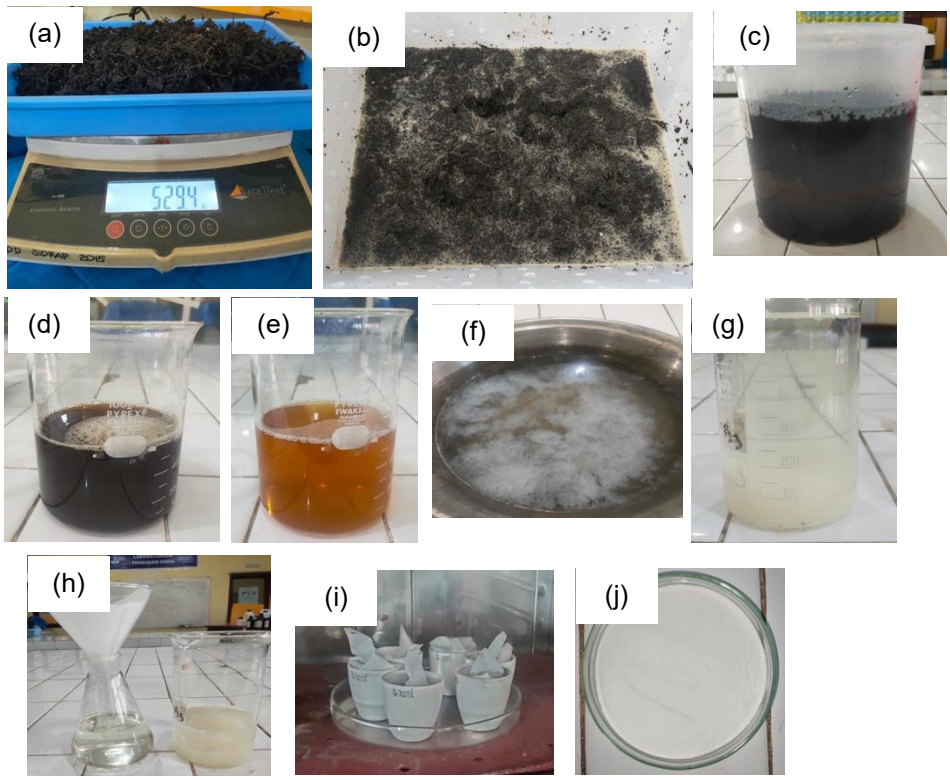
Lampiran 3a. Alur Penelitian



Lampiran 3b. Foto-Foto Proses Penelitian

Pembuatan Ekstrak

1. Ekstraksi Alginat

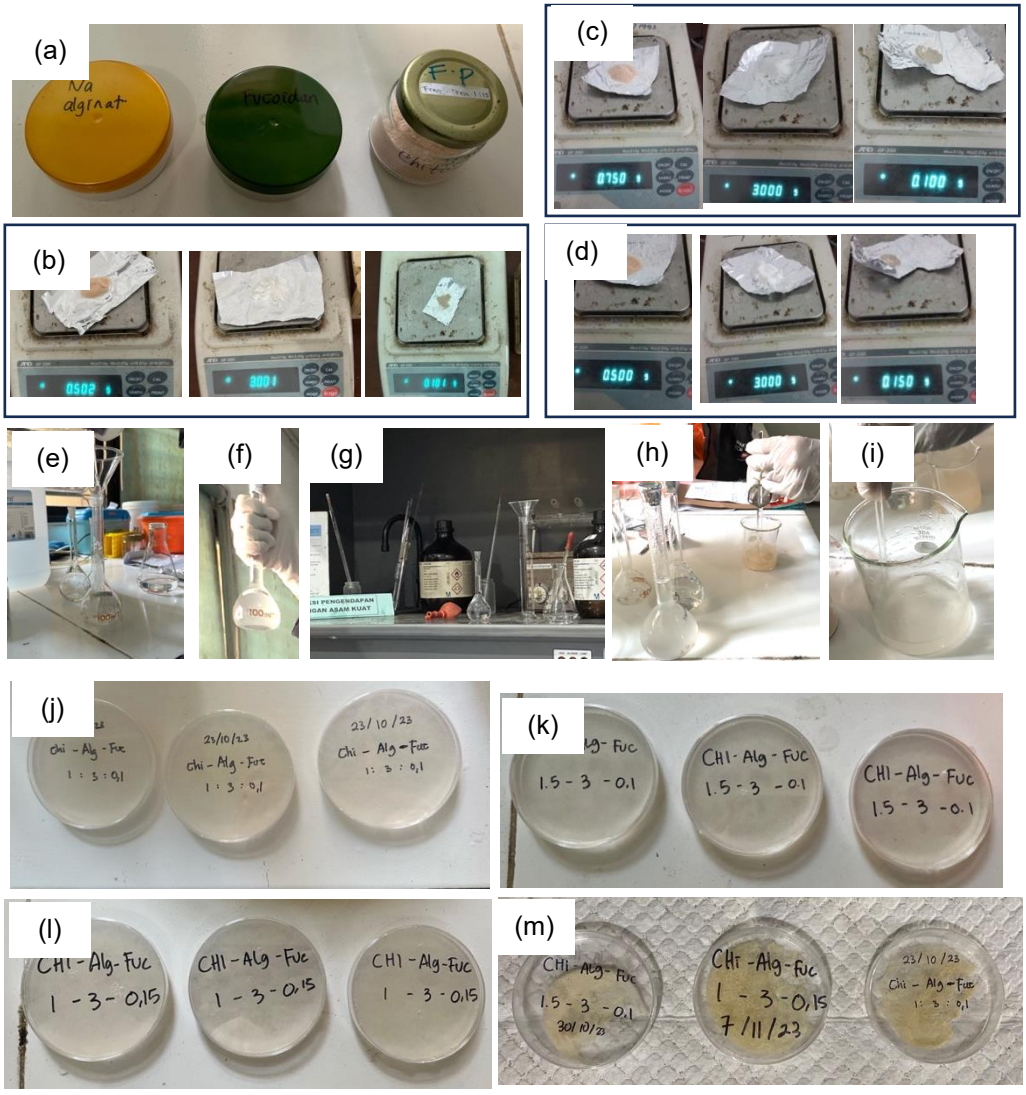


Gambar 15. (a) Sampel rumput laut jenis sargassum ditimbang dan dipotong seukuran 1 cm; (b) Rendam dalam air tawar selama 30 menit; (c) Setelah ditiriskan, sampel rendam dengan menggunakan KOH 0,8% (1:20) selama 30 menit pada suhu 60^{o}C; (d) Sample di cuci hingga pH netral lalu direndam dalam larutan HCl 5% (1:20) selama 60 menit pada suhu 60^{o}C; (e) Sampel dicuci hingga pH Netral, kemudian ditambah larutan Na_2CO_3 7% (1:20) dan dipanaskan pada suhu 60^{o}C selama 2 jam. Larutan Sampel disaring; (f) Filtrat ditambahkan CaO 13% (1:1), kemudian ditambahkan HCl 5% (1:20) menghasilkan Asam Alginat. Larutan Asam Alginat diendapkan dengan NaOH 2%, dicuci hingga pH netral; (g) Tambahkan Ethanol 96% (1:5); (h) Saring endapan; (i) Dikeringkan dalam oven suhu 60^{o}C selama 24 jam; (j) Na-alginat berwarna putih

2. Ekstraksi Fucoidan

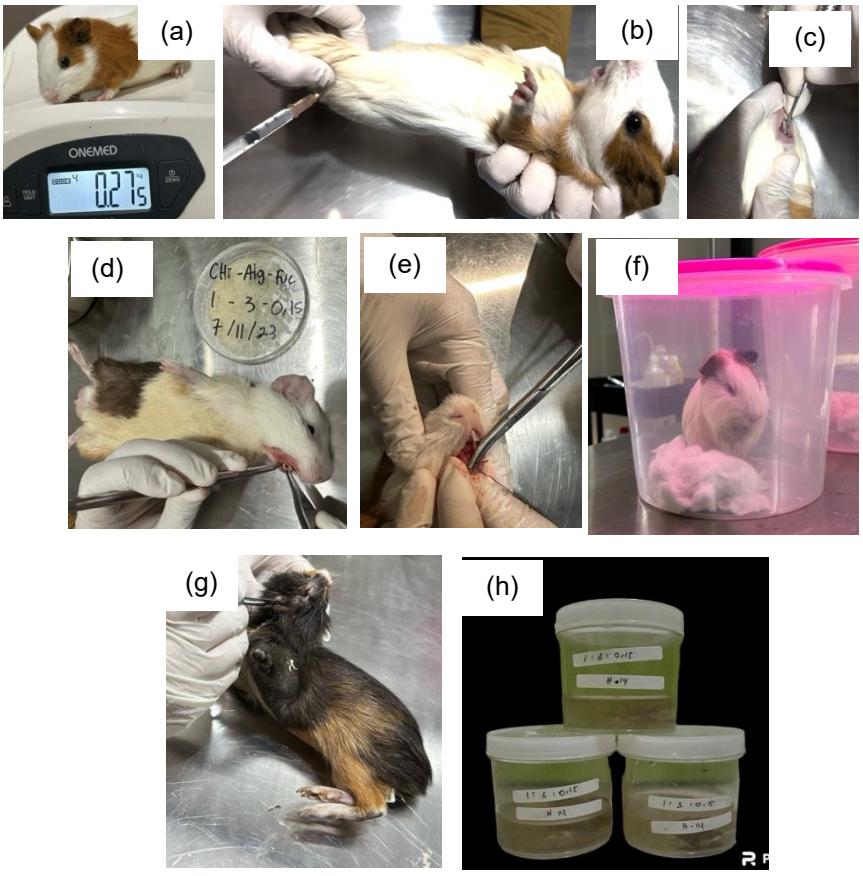
Gambar 16. (a) Alga coklat jenis *Sargassum sp*. kemudian dikeringkan di atas talang aluminium; (b)Sampel rumput laut yang sudah dikeringkan ditimbang; (c) Proses penepungan dengan diblender; (d) Sebanyak 15 gram tepung Alga coklat jenis *Sargassum sp*. diekstrak dengan HCl 0,1 N dalam air selama 5 jam pada suhu 85^0C; (e) Disaring ke dalam erlenmeyer dengan menggunakan planktonet, diambil filtratnya; (f) Ditambahkan $CaCl_2$ 4 M untuk mengendapkan alginat yang dikandung oleh rumput laut cokelat; (g) Disentrifugasi dengan kecepatan 8000 rpm selama 30 menit untuk memisahkan endapan dari filtratnya; (h) Dibekukan dalam *freezer* kemudian dikeringkan menggunakan *freeze drying* hingga diperoleh ekstrak kasar *fucoidan* (*crude fucoidan*) dalam bentuk bubuk

Persiapan dan Pembuatan *Scaffold*



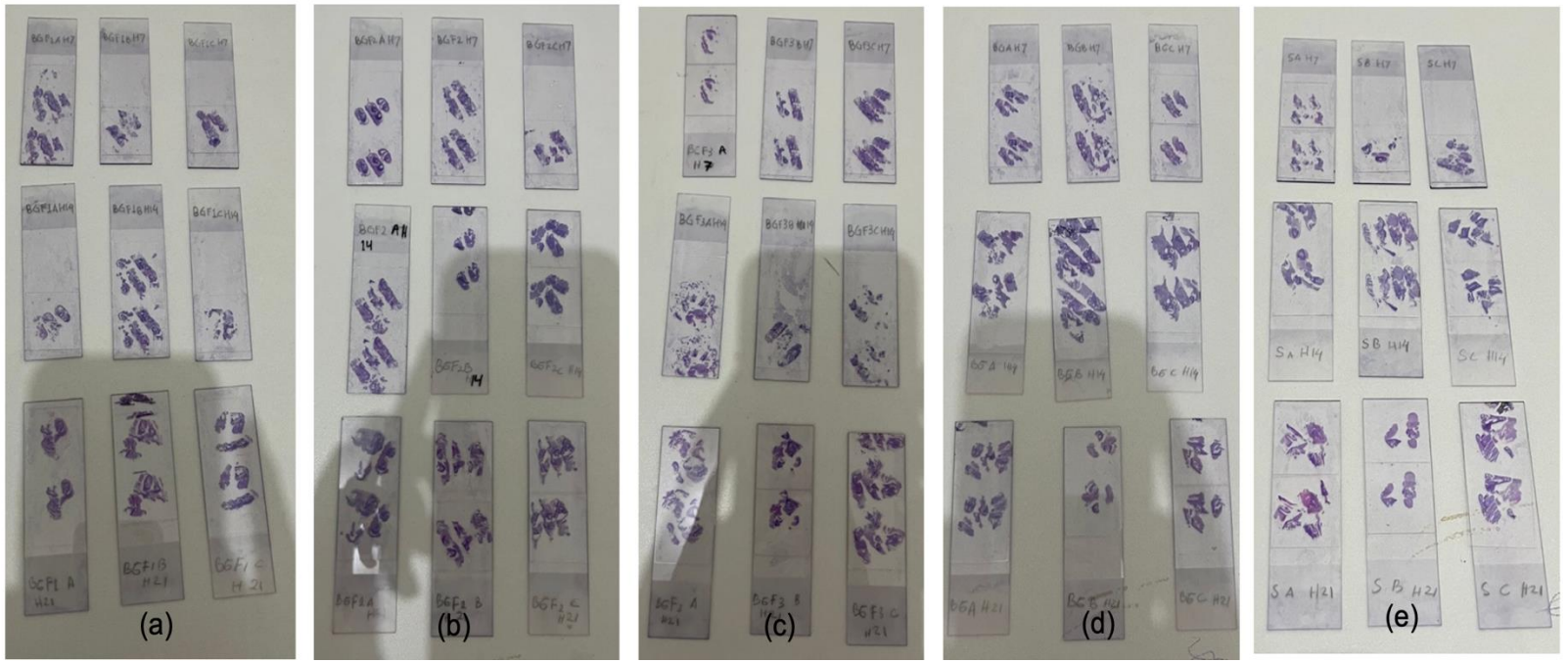
Gambar 17. (a) Ekstrak alginat, *fucoidan, chitosan*; (b) Perhitungan berat untuk Formula 1; (c) Perhitungan berat untuk Formula 2; (d) Perhitungan berat untuk Formula 3; (e) Alginat 3% (3 gr alginat dalam 100 ml aquades); (f) Alginat 3% digabungkan dengan *fucoidan* 0,1% atau 0,15% (b/100 ml) hingga merata; (g) Pembuatan Asam Asetat 1%; (h) *Chitosan* dilarutkan dalam asam asetat 50 ml dan diperoleh konsentrasi 1% dan 1,5% (b/v); (i) Larutan *chitosan* dan *fucoidan*+alginat disatukan dan diaduk hingga merata; (j) Formula 1 (chi:alg:fucoidan = 1:3:0,1) dimasukkan ke *freezer* dengan suhu -24^{0}C selama 24 jam; (k) Formula 2 (chi:alg:fucoidan = 1,5:3:0,1) dimasukkan ke *freezer* dengan suhu -24^{0}C selama 24 jam; (l) Formula 3 (chi:alg:fucoidan = 1:3:0,15) dimasukkan ke *freezer* dengan suhu -24^{0}C selama 24 jam; (m) Hasil Formula 1, 2 dan 3 setelah di *freeze dry,* 107^{0}C 0,005bar selama 8 jam.

Proses Pencabutan Gigi Marmut dan *Sacrificed*



Gambar 18. (a) Marmut ditimbang sebelum diberi perlakuan; (b) Anastesi menggunakan ketamin; (c) Proses pencabutan gigi insisivus rahang bawah marmut; (d) Aplikasi salah satu bahan (Formula 3); (e) Penjahitan bekas pencabutan; (g) Proses *sacrificed* setelah hari ke-7, 14 dan 21 dengan memasukkan marmut ke dalam wadah berisi eter; (i) Jaringan yang diambil dari rahang bawah bekas pencabutan dimasukkan ke dalam larutan buffer formalin 10% sebagai fiksasi.

Pembuatan Preparat Histologi dan Pewarnaan Gram



Gambar 19. (a) Formula 1; (b) Formula 2; (c) Formula 3; (d) Kontrol Positif; (e) Kontrol Negatif

Lampiran 4a. Output Uji Statistik Osteocyte

Uji Normalitas Data Jumlah *Osteocyte*

Hari 7, Hari 14 dan Hari 21 Kontrol positif, Kontrol Negatif, Formula 1, 2 dan 3

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelompok	Statistic	df	Sig.	Statistic	df	Sig.
Hari7	KP	.288	3	.	.928	3	.483
	KN	.307	3	.	.903	3	.394
	F1	.358	3	.	.813	3	.146
	F2	.362	3	.	.803	3	.122
	F3	.291	3	.	.925	3	.470

a. Lilliefors Significance Correction

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelompok	Statistic	df	Sig.	Statistic	df	Sig.
Hari14	KP	.307	3	.	.903	3	.394
	KN	.373	3	.	.780	3	.067
	F1	.190	3	.	.997	3	.903
	F2	.220	3	.	.987	3	.779
	F3	.227	3	.	.983	3	.747

a. Lilliefors Significance Correction

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelompok	Statistic	df	Sig.	Statistic	df	Sig.
Hari21	KP	.229	3	.	.982	3	.741
	KN	.362	3	.	.805	3	.127
	F1	.191	3	.	.997	3	.898
	F2	.268	3	.	.950	3	.570
	F3	.363	3	.	.802	3	.119

a. Lilliefors Significance Correction

Uji Beda Antara 2 Kelompok Osteosyte

Hari 7

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KP	3	286.0000	110.01364	63.51640
	KN	3	100.3333	34.21013	19.75123

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	4.329	.106	2.791	4	.025	.049	185.66667	66.51650	.98726	370.34607
	Equal variances not assumed			2.791	2.383	.044	.089	185.66667	66.51650	-60.65455	431.98788

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KP	3	286.0000	110.01364	63.51640
	F1	3	84.6667	32.71595	18.88856

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	4.534	.100	3.038	4	.019	.038	201.33333	66.26546	17.35092	385.31574
	Equal variances not assumed			3.038	2.351	.038	.076	201.33333	66.26546	-46.63712	449.30379

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KP	3	286.0000	110.01364	63.51640
	F2	3	222.0000	7.81025	4.50925

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	8.561	.043	1.005	4	.186	.372	64.00000	63.67626	-112.79365	240.79365
	Equal variances not assumed			1.005	2.020	.210	.420	64.00000	63.67626	-207.37340	335.37340

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KP	3	286.0000	110.01364	63.51640
	F3	3	223.0000	41.07311	23.71357

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	3.447	.137	.929	4	.203	.405	63.00000	67.79872	-125.23943	251.23943
	Equal variances not assumed			.929	2.547	.216	.432	63.00000	67.79872	-176.19221	302.19221

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KN	3	100.3333	34.21013	19.75123
	F1	3	84.6667	32.71595	18.88856

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	.004	.950	.573	4	.299	.597	15.66667	27.32927	-60.21155	91.54488
	Equal variancesnot assumed			.573	3.992	.299	.597	15.66667	27.32927	-60.27119	91.60452

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KN	3	100.3333	34.21013	19.75123
	F2	3	222.0000	7.81025	4.50925

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	6.498	.063	-6.005	4	.002	.004	-121.66667	20.25943	-177.91586	-65.41748
	Equal variances not assumed			-6.005	2.208	.010	.021	-121.66667	20.25943	-201.42331	-41.91003

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KN	3	100.3333	34.21013	19.75123
	F3	3	223.0000	41.07311	23.71357

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	.159	.710	-3.975	4	.008	.016	-122.66667	30.86170	-208.35248	-36.98085
	Equal variances not assumed			-3.975	3.873	.009	.018	-122.66667	30.86170	-209.46877	-35.86456

Hari 14

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KP	3	528.3333	126.82403	73.22189
	KN	3	86.3333	14.15392	8.17177

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	8.921	.040	5.999	4	.002	.004	442.00000	73.67647	237.44133	646.55867
	Equal variances not assumed			5.999	2.050	.013	.025	442.00000	73.67647	132.26479	751.73521

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KP	3	528.3333	126.82403	73.22189
	F1	3	178.6667	91.11714	52.60651

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	.679	.456	3.878	4	.009	.018	349.66667	90.16035	99.34140	599.99193
	Equal variances not assumed			3.878	3.630	.011	.021	349.66667	90.16035	88.96066	610.37267

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KP	3	528.3333	126.82403	73.22189
	F2	3	298.3333	139.93689	80.79260

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	.005	.949	2.109	4	.051	.103	230.00000	109.03618	-72.73297	532.73297
	Equal variances not assumed			2.109	3.962	.052	.103	230.00000	109.03618	-73.88483	533.88483

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KP	3	528.3333	126.82403	73.22189
	F3	3	114.0000	13.11488	7.57188

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	9.180	.039	5.629	4	.002	.005	414.33333	73.61235	209.95269	618.71398
	Equal variances not assumed			5.629	2.043	.014	.029	414.33333	73.61235	103.87564	724.79102

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KN	3	86.3333	14.15392	8.17177
	F1	3	178.6667	91.11714	52.60651

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	3.221	.147	-1.734	4	.079	.158	-92.33333	53.23741	-240.14409	55.47742
	Equal variances not assumed			-1.734	2.096	.110	.219	-92.33333	53.23741	-311.58599	126.91932

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KN	3	86.3333	14.15392	8.17177
	F2	3	298.3333	139.93689	80.79260

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	4.706	.096	-2.611	4	.030	.059	-212.00000	81.20482	-437.46072	13.46072
	Equal variances not assumed			-2.611	2.041	.059	.118	-212.00000	81.20482	-554.76858	130.76858

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KN	3	86.3333	14.15392	8.17177
	F3	3	114.0000	13.11488	7.57188

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	.114	.753	-2.483	4	.034	.068	-27.66667	11.14052	-58.59770	3.26437
	Equal variances not assumed			-2.483	3.977	.034	.068	-27.66667	11.14052	-58.66847	3.33513

Hari 21

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KP	3	277.3333	27.75488	16.02429
	KN	3	89.3333	15.04438	8.68588

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	.967	.381	10.314	4	<.001	<.001	188.00000	18.22696	137.39383	238.60617
	Equal variances not assumed			10.314	3.082	<.001	.002	188.00000	18.22696	130.85561	245.14439

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KP	3	277.3333	27.75488	16.02429
	F1	3	342.0000	48.56954	28.04164

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	.629	.472	-2.002	4	.058	.116	-64.66667	32.29723	-154.33815	25.00482
	Equal variances not assumed			-2.002	3.180	.067	.134	-64.66667	32.29723	-164.23109	34.89775

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KP	3	277.3333	27.75488	16.02429
	F2	3	321.0000	27.18455	15.69501

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	.000	.984	-1.947	4	.062	.123	-43.66667	22.43014	-105.94271	18.60938
	Equal variances not assumed			-1.947	3.998	.062	.123	-43.66667	22.43014	-105.95330	18.61997

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KP	3	277.3333	27.75488	16.02429
	F3	3	202.6667	40.20365	23.21159

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	1.004	.373	2.647	4	.029	.057	74.66667	28.20559	-3.64462	152.97795
	Equal variances not assumed			2.647	3.554	.032	.065	74.66667	28.20559	-7.68210	157.01544

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KN	3	89.3333	15.04438	8.68588
	F1	3	342.0000	48.56954	28.04164

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	1.981	.232	-8.607	4	<.001	.001	-252.66667	29.35605	-334.17213	-171.16120
	Equal variances not assumed			-8.607	2.380	.004	.008	-252.66667	29.35605	-361.47878	-143.85455

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KN	3	89.3333	15.04438	8.68588
	F2	3	321.0000	27.18455	15.69501

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	1.296	.318	-12.915	4	<.001	<.001	-231.66667	17.93817	-281.47100	-181.86234
	Equal variances not assumed			-12.915	3.120	<.001	<.001	-231.66667	17.93817	-287.53147	-175.80186

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KN	3	89.3333	15.04438	8.68588
	F3	3	202.6667	40.20365	23.21159

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	5.310	.083	-4.573	4	.005	.010	-113.33333	24.78351	-182.14338	-44.52329
	Equal variances not assumed			-4.573	2.549	.014	.028	-113.33333	24.78351	-200.71094	-25.95572

Uji Beda Antara 3 Kelompok Osteosyte

Hari 7

ANOVA

Hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	75252.667	2	37626.333	7.870	.021
Within Groups	28687.333	6	4781.222		
Total	103940.000	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari7

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
KP	KN	185.66667*	56.45778	.017	47.5194	323.8139
	F1	201.33333*	56.45778	.012	63.1861	339.4806
KN	KP	-185.66667*	56.45778	.017	-323.8139	-47.5194
	F1	15.66667	56.45778	.791	-122.4806	153.8139
F1	KP	-201.33333*	56.45778	.012	-339.4806	-63.1861
	KN	-15.66667	56.45778	.791	-153.8139	122.4806

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	53370.889	2	26685.444	6.004	.037
Within Groups	26668.667	6	4444.778		
Total	80039.556	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari7

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	185.66667*	54.43515	.014	52.4687	318.8647
	F2	64.00000	54.43515	.284	-69.1980	197.1980
KN	KP	-185.66667*	54.43515	.014	-318.8647	-52.4687
	F2	-121.66667	54.43515	.067	-254.8647	11.5313
F2	KP	-64.00000	54.43515	.284	-197.1980	69.1980
	KN	121.66667	54.43515	.067	-11.5313	254.8647

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	53488.222	2	26744.111	5.363	.046
Within Groups	29920.667	6	4986.778		
Total	83408.889	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari7

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	185.66667*	57.65864	.018	44.5811	326.7523
	F3	63.00000	57.65864	.316	-78.0856	204.0856
KN	KP	-185.66667*	57.65864	.018	-326.7523	-44.5811
	F3	-122.66667	57.65864	.077	-263.7523	18.4189
F3	KP	-63.00000	57.65864	.316	-204.0856	78.0856
	KN	122.66667	57.65864	.077	-18.4189	263.7523

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	37997.556	2	18998.778	20.223	.002
Within Groups	5636.667	6	939.444		
Total	43634.222	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari7

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F1	F2	-137.33333*	25.02591	.002	-198.5695	-76.0971
	F3	-138.33333*	25.02591	.001	-199.5695	-77.0971
F2	F1	137.33333*	25.02591	.002	76.0971	198.5695
	F3	-1.00000	25.02591	.969	-62.2362	60.2362
F3	F1	138.33333*	25.02591	.001	77.0971	199.5695
	F2	1.00000	25.02591	.969	-60.2362	62.2362

*. The mean difference is significant at the 0.05 level.

Hari 14
Oneway

ANOVA

Hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	326156.222	2	163078.111	19.898	.002
Within Groups	49174.000	6	8195.667		
Total	375330.222	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari14

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	442.00000*	73.91737	<.001	261.1307	622.8693
	F1	349.66667*	73.91737	.003	168.7974	530.5360
KN	KP	-442.00000*	73.91737	<.001	-622.8693	-261.1307
	F1	-92.33333	73.91737	.258	-273.2026	88.5360
F1	KP	-349.66667*	73.91737	.003	-530.5360	-168.7974
	KN	92.33333	73.91737	.258	-88.5360	273.2026

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	293208.000	2	146604.000	12.262	.008
Within Groups	71734.000	6	11955.667		
Total	364942.000	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari14

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	442.00000*	89.27735	.003	223.5462	660.4538
	F2	230.00000*	89.27735	.042	11.5462	448.4538
KN	KP	-442.00000*	89.27735	.003	-660.4538	-223.5462
	F2	-212.00000	89.27735	.055	-430.4538	6.4538
F2	KP	-230.00000*	89.27735	.042	-448.4538	-11.5462
	KN	212.00000	89.27735	.055	-6.4538	430.4538

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	367801.556	2	183900.778	33.525	<.001
Within Groups	32913.333	6	5485.556		
Total	400714.889	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari14

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	442.00000*	60.47344	<.001	294.0268	589.9732
	F3	414.33333*	60.47344	<.001	266.3602	562.3065
KN	KP	-442.00000*	60.47344	<.001	-589.9732	-294.0268
	F3	-27.66667	60.47344	.663	-175.6398	120.3065
F3	KP	-414.33333*	60.47344	<.001	-562.3065	-266.3602
	KN	27.66667	60.47344	.663	-120.3065	175.6398

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	52480.667	2	26240.333	2.806	.138
Within Groups	56113.333	6	9352.222		
Total	108594.000	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari21

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F1	F2	21.00000	32.36711	.540	-58.1995	100.1995
	F3	139.33333*	32.36711	.005	60.1339	218.5328
F2	F1	-21.00000	32.36711	.540	-100.1995	58.1995
	F3	118.33333*	32.36711	.011	39.1339	197.5328
F3	F1	-139.33333*	32.36711	.005	-218.5328	-60.1339
	F2	-118.33333*	32.36711	.011	-197.5328	-39.1339

*. The mean difference is significant at the 0.05 level.

Hari 21
Oneway

ANOVA

Hari21

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	103366.222	2	51683.111	46.205	<.001
Within Groups	6711.333	6	1118.556		
Total	110077.556	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari21

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	188.00000*	27.30758	<.001	121.1808	254.8192
	F1	-64.66667	27.30758	.056	-131.4859	2.1526
KN	KP	-188.00000*	27.30758	<.001	-254.8192	-121.1808
	F1	-252.66667*	27.30758	<.001	-319.4859	-185.8474
F1	KP	64.66667	27.30758	.056	-2.1526	131.4859
	KN	252.66667*	27.30758	<.001	185.8474	319.4859

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari21

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	90920.222	2	45460.111	78.575	<.001
Within Groups	3471.333	6	578.556		
Total	94391.556	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari21

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	188.00000*	19.63934	<.001	139.9443	236.0557
	F2	-43.66667	19.63934	.068	-91.7224	4.3891
KN	KP	-188.00000*	19.63934	<.001	-236.0557	-139.9443
	F2	-231.66667*	19.63934	<.001	-279.7224	-183.6109
F2	KP	43.66667	19.63934	.068	-4.3891	91.7224
	KN	231.66667*	19.63934	<.001	183.6109	279.7224

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari21

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	53763.556	2	26881.778	30.863	<.001
Within Groups	5226.000	6	871.000		
Total	58989.556	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari21

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	188.00000*	24.09703	<.001	129.0367	246.9633
	F3	74.66667*	24.09703	.021	15.7034	133.6300
KN	KP	-188.00000*	24.09703	<.001	-246.9633	-129.0367
	F3	-113.33333*	24.09703	.003	-172.2966	-54.3700
F3	KP	-74.66667*	24.09703	.021	-133.6300	-15.7034
	KN	113.33333*	24.09703	.003	54.3700	172.2966

*. The mean difference is significant at the 0.05 level.

Oneway

ANOVA

Hari21

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	33857.556	2	16928.778	10.773	.010
Within Groups	9428.667	6	1571.444		
Total	43286.222	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: Hari21

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
F1	F2	21.00000	32.36711	.540	-58.1995	100.1995
	F3	139.33333*	32.36711	.005	60.1339	218.5328
F2	F1	-21.00000	32.36711	.540	-100.1995	58.1995
	F3	118.33333*	32.36711	.011	39.1339	197.5328
F3	F1	-139.33333*	32.36711	.005	-218.5328	-60.1339
	F2	-118.33333*	32.36711	.011	-197.5328	-39.1339

*. The mean difference is significant at the 0.05 level.

Uji Beda Setiap Formula Berdasarkan Hari 7, 14 dan 21 Osteosyte

Formula 1

ANOVA

Formula1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	101734.222	2	50867.111	13.008	.007
Within Groups	23463.333	6	3910.556		
Total	125197.556	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: UlanganF1

LSD

(I) Hari	(J) Hari	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
hari 7	hari 14	-94.00000	51.05915	.115	-218.9372	30.9372
	hari 21	-257.33333*	51.05915	.002	-382.2706	-132.3961
hari 14	hari 7	94.00000	51.05915	.115	-30.9372	218.9372
	hari 21	-163.33333*	51.05915	.019	-288.2706	-38.3961
hari 21	hari 7	257.33333*	51.05915	.002	132.3961	382.2706
	hari 14	163.33333*	51.05915	.019	38.3961	288.2706

*. The mean difference is significant at the 0.05 level.

Formula 2

Oneway

ANOVA

Formula2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16141.556	2	8070.778	1.188	.368
Within Groups	40764.667	6	6794.111		
Total	56906.222	8			

Formula 3

Oneway

ANOVA

Formula3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20156.222	2	10078.111	8.700	.017
Within Groups	6950.667	6	1158.444		
Total	27106.889	8			

Post Hoc Tests

Multiple Comparisons

Dependent Variable: UlanganF3

LSD

(I) Hari	(J) Hari	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
hari 7	hari 14	109.00000*	27.79022	.008	40.9998	177.0002
	hari 21	20.33333	27.79022	.492	-47.6669	88.3336
hari 14	hari 7	-109.00000*	27.79022	.008	-177.0002	-40.9998
	hari 21	-88.66667*	27.79022	.019	-156.6669	-20.6664
hari 21	hari 7	-20.33333	27.79022	.492	-88.3336	47.6669
	hari 14	88.66667*	27.79022	.019	20.6664	156.6669

*. The mean difference is significant at the 0.05 level.

Lampiran 4b. Output Uji Statistik *Osteoclast*

Uji Normalitas Data Jumlah *Osteoclast*

Hari 7, Hari 14 dan Hari 21 Kontrol positif, Kontrol Negatif, Formula 1, 2 dan 3

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelompok	Statistic	df	Sig.	Statistic	df	Sig.
Hari7	KP	.253	3	.	.964	3	.637
	KN	.337	3	.	.855	3	.253
	F1	.276	3	.	.942	3	.537
	F2	.175	3	.	1.000	3	1.000
	F3	.276	3	.	.942	3	.537

a. Lilliefors Significance Correction

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelompok	Statistic	df	Sig.	Statistic	df	Sig.
Hari14	KP	.346	3	.	.837	3	.206
	KN	.175	3	.	1.000	3	1.000
	F1	.276	3	.	.942	3	.537
	F2	.253	3	.	.964	3	.637
	F3	.337	3	.	.855	3	.253

a. Lilliefors Significance Correction

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelompok	Statistic	df	Sig.	Statistic	df	Sig.
Hari21	KP	.343	3	.	.842	3	.220
	KN	.196	3	.	.996	3	.878
	F1	.292	3	.	.923	3	.463
	F2	.341	3	.	.846	3	.230
	F3	.385	3	.	.750	3	<.001

a. Lilliefors Significance Correction

Uji Beda Antara 2 Kelompok Osteoclast

Hari 7

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KP	3	30.3333	3.05505	1.76383
	KN	3	6.6667	3.78594	2.18581

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	.356	.583	8.426	4	<.001	.001	23.66667	2.80872	15.86842	31.46491
	Equal variances not assumed			8.426	3.829	<.001	.001	23.66667	2.80872	15.72921	31.60412

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KP	3	30.3333	3.05505	1.76383
	F1	3	14.0000	7.21110	4.16333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	2.579	.184	3.612	4	.011	.023	16.33333	4.52155	3.77949	28.88718
	Equal variances not assumed			3.612	2.696	.022	.043	16.33333	4.52155	.97911	31.68756

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KP	3	30.3333	3.05505	1.76383
	F2	3	15.0000	3.00000	1.73205

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	.030	.871	6.203	4	.002	.003	15.33333	2.47207	8.46978	22.19689
	Equal variances not assumed			6.203	3.999	.002	.003	15.33333	2.47207	8.46888	22.19778

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KP	3	30.3333	3.05505	1.76383
	F3	3	13.0000	7.21110	4.16333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	2.579	.184	3.833	4	.009	.019	17.33333	4.52155	4.77949	29.88718
	Equal variances not assumed			3.833	2.696	.019	.038	17.33333	4.52155	1.97911	32.68756

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KN	3	6.6667	3.78594	2.18581
	F1	3	14.0000	7.21110	4.16333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	1.608	.274	-1.560	4	.097	.194	-7.33333	4.70225	-20.38886	5.72219
	Equal variances not assumed			-1.560	3.025	.108	.216	-7.33333	4.70225	-22.22906	7.56239

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KN	3	6.6667	3.78594	2.18581
	F2	3	15.0000	3.00000	1.73205

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	.492	.522	-2.988	4	.020	.040	-8.33333	2.78887	-16.07647	-.59020
	Equal variances not assumed			-2.988	3.801	.022	.043	-8.33333	2.78887	-16.23865	-.42802

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari7	KN	3	6.6667	3.78594	2.18581
	F3	3	13.0000	7.21110	4.16333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari7	Equal variances assumed	1.608	.274	-1.347	4	.125	.249	-6.33333	4.70225	-19.38886	6.72219
	Equal variances not assumed			-1.347	3.025	.135	.270	-6.33333	4.70225	-21.22906	8.56239

Hari 14
T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KP	3	15.6667	9.29157	5.36449
	KN	3	3.0000	1.00000	.57735

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	11.521	.027	2.348	4	.039	.079	12.66667	5.39547	-2.31356	27.64690
	Equal variances not assumed			2.348	2.046	.070	.141	12.66667	5.39547	-10.05174	35.38508

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KP	3	15.6667	9.29157	5.36449
	F1	3	18.0000	7.21110	4.16333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	.479	.527	-.344	4	.374	.748	-2.33333	6.79052	-21.18683	16.52016
	Equal variances not assumed			-.344	3.768	.375	.749	-2.33333	6.79052	-21.65380	16.98714

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KP	3	15.6667	9.29157	5.36449
	F2	3	17.6667	3.05505	1.76383

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	5.779	.074	-.354	4	.371	.741	-2.00000	5.64702	-17.67865	13.67865
	Equal variances not assumed			-.354	2.427	.376	.752	-2.00000	5.64702	-22.62451	18.62451

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KP	3	15.6667	9.29157	5.36449
	F3	3	7.3333	3.78594	2.18581

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	4.349	.105	1.439	4	.112	.224	8.33333	5.79272	-7.74982	24.41649
	Equal variances not assumed			1.439	2.646	.129	.257	8.33333	5.79272	-11.57722	28.24389

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KN	3	3.0000	1.00000	.57735
	F1	3	18.0000	7.21110	4.16333

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	6.759	.060	-3.569	4	.012	.023	-15.00000	4.20317	-26.66988	-3.33012
	Equal variances not assumed			-3.569	2.077	.033	.067	-15.00000	4.20317	-32.45807	2.45807

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KN	3	3.0000	1.00000	.57735
	F2	3	17.6667	3.05505	1.76383

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	3.213	.148	-7.903	4	<.001	.001	-14.66667	1.85592	-19.81953	-9.51380
	Equal variances not assumed			-7.903	2.424	.004	.009	-14.66667	1.85592	-21.45277	-7.88056

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari14	KN	3	3.0000	1.00000	.57735
	F3	3	7.3333	3.78594	2.18581

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari14	Equal variances assumed	6.897	.058	-1.917	4	.064	.128	-4.33333	2.26078	-10.61026	1.94359
	Equal variances not assumed			-1.917	2.278	.090	.180	-4.33333	2.26078	-13.00800	4.34134

Hari 21

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KP	3	20.0000	17.43560	10.06645
	F1	3	10.3333	4.16333	2.40370

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	7.808	.049	.934	4	.202	.403	9.66667	10.34945	-19.06801	38.40135
	Equal variances not assumed			.934	2.227	.220	.440	9.66667	10.34945	-30.77946	50.11279

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KP	3	20.0000	17.43560	10.06645
	F2	3	18.6667	12.50333	7.21880

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	.755	.434	.108	4	.460	.919	1.33333	12.38727	-33.05924	35.72591
	Equal variances not assumed			.108	3.627	.460	.920	1.33333	12.38727	-34.50095	37.16762

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KP	3	20.0000	17.43560	10.06645
	F3	3	19.0000	16.46208	9.50438

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	.020	.895	.072	4	.473	.946	1.00000	13.84437	-37.43814	39.43814
	Equal variances not assumed			.072	3.987	.473	.946	1.00000	13.84437	-37.48812	39.48812

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KN	3	10.6667	4.50925	2.60342
	F1	3	10.3333	4.16333	2.40370

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	.000	1.000	.094	4	.465	.930	.33333	3.54338	-9.50467	10.17134
	Equal variances not assumed			.094	3.975	.465	.930	.33333	3.54338	-9.52933	10.19600

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KN	3	10.6667	4.50925	2.60342
	F2	3	18.6667	12.50333	7.21880

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	4.947	.090	-1.042	4	.178	.356	-8.00000	7.67391	-29.30619	13.30619
	Equal variances not assumed			-1.042	2.512	.193	.387	-8.00000	7.67391	-35.34114	19.34114

T-Test

Group Statistics

	Kelompok	N	Mean	Std. Deviation	Std. Error Mean
Hari21	KN	3	10.6667	4.50925	2.60342
	F3	3	19.0000	16.46208	9.50438

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Hari21	Equal variances assumed	7.578	.051	-.846	4	.223	.445	-8.33333	9.85450	-35.69380	19.02714
	Equal variances not assumed			-.846	2.298	.238	.477	-8.33333	9.85450	-45.87129	29.20463

Uji Beda Antara 3 Kelompok Osteoclast

Hari 7

One way

ANOVA

Hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	880.667	2	440.333	17.458	.003
Within Groups	151.333	6	25.222		
Total	1032.000	8			

Post Hoc Test

Multiple Comparisons

Dependent Variable: Hari7

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	23.66667*	4.10059	.001	13.6329	33.7004
	F1	16.33333*	4.10059	.007	6.2996	26.3671
KN	KP	-23.66667*	4.10059	.001	-33.7004	-13.6329
	F1	-7.33333	4.10059	.124	-17.3671	2.7004
F1	KP	-16.33333*	4.10059	.007	-26.3671	-6.2996
	KN	7.33333	4.10059	.124	-2.7004	17.3671

*. The mean difference is significant at the 0.05 level.

One way

ANOVA

Hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	864.667	2	432.333	39.704	<.001
Within Groups	65.333	6	10.889		
Total	930.000	8			

Post Hoc Test

Multiple Comparisons

Dependent Variable: Hari7

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	23.66667*	2.69430	<.001	17.0739	30.2594
	F2	15.33333*	2.69430	.001	8.7406	21.9261
KN	KP	-23.66667*	2.69430	<.001	-30.2594	-17.0739
	F2	-8.33333*	2.69430	.021	-14.9261	-1.7406
F2	KP	-15.33333*	2.69430	.001	-21.9261	-8.7406
	KN	8.33333*	2.69430	.021	1.7406	14.9261

*. The mean difference is significant at the 0.05 level.

One way

ANOVA

Hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	900.667	2	450.333	17.855	.003
Within Groups	151.333	6	25.222		
Total	1052.000	8			

Post Hoc Test

Multiple Comparisons

Dependent Variable: Hari7

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	23.66667*	4.10059	.001	13.6329	33.7004
	F3	17.33333*	4.10059	.006	7.2996	27.3671
KN	KP	-23.66667*	4.10059	.001	-33.7004	-13.6329
	F3	-6.33333	4.10059	.173	-16.3671	3.7004
F3	KP	-17.33333*	4.10059	.006	-27.3671	-7.2996
	KN	6.33333	4.10059	.173	-3.7004	16.3671

*. The mean difference is significant at the 0.05 level.

One way F1, F2 dan F3

ANOVA

Hari7

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.000	2	3.000	.080	.924
Within Groups	226.000	6	37.667		
Total	232.000	8			

Hari 14

One way KP, KN, F1

ANOVA

Hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	390.889	2	195.444	4.208	.072
Within Groups	278.667	6	46.444		
Total	669.556	8			

One way KP, KN, F2

ANOVA

Hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	379.556	2	189.778	5.890	.038
Within Groups	193.333	6	32.222		
Total	572.889	8			

Multiple Comparisons

Dependent Variable: Hari14

LSD

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
KP	KN	12.66667*	4.63481	.034	1.3257	24.0076
	F2	-2.00000	4.63481	.681	-13.3410	9.3410
KN	KP	-12.66667*	4.63481	.034	-24.0076	-1.3257
	F2	-14.66667*	4.63481	.019	-26.0076	-3.3257
F2	KP	2.00000	4.63481	.681	-9.3410	13.3410
	KN	14.66667*	4.63481	.019	3.3257	26.0076

*. The mean difference is significant at the 0.05 level.

One way KP, KN, F3

ANOVA

Hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	248.667	2	124.333	3.669	.091
Within Groups	203.333	6	33.889		
Total	452.000	8			

One way F1, F2 dan F3

ANOVA

Hari14

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	220.667	2	110.333	4.374	.067
Within Groups	151.333	6	25.222		
Total	372.000	8			

Hari 21

One way KP, KN dan F1

ANOVA

Hari21

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	180.667	2	90.333	.793	.495
Within Groups	683.333	6	113.889		
Total	864.000	8			

One way KP, KN dan F2

ANOVA

Hari21

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	152.889	2	76.444	.477	.642
Within Groups	961.333	6	160.222		
Total	1114.222	8			

One way KP, KN dan F3

ANOVA

Hari21

	Sum of Squares	df	Mean Square	F	Sig.

Between Groups	157.556	2	78.778	.397	.689
Within Groups	1190.667	6	198.444		
Total	1348.222	8			

One way F1, F2 dan F3

ANOVA

Hari21

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	144.667	2	72.333	.488	.636
Within Groups	889.333	6	148.222		
Total	1034.000	8			

Uji Beda Setiap Formula Berdasarkan Hari 7, 14 dan 21 Osteoclast

Formula 1

One way

ANOVA

Formula1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	88.222	2	44.111	1.091	.394
Within Groups	242.667	6	40.444		
Total	330.889	8			

Formula 2

One way

ANOVA

Formula2

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.556	2	10.778	.185	.836
Within Groups	349.333	6	58.222		
Total	370.889	8			

Formula 3

One way

ANOVA

UlanganF3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	204.222	2	102.111	.908	.452
Within Groups	674.667	6	112.444		
Total	878.889	8			