

KEPUSTAKAAN

- Adamo, M , A., Pollack, I , F. 2010. A Single-Center Experience with Symptomatic Postoperative Calvarial Growth Restriction After Extended Strip Craniectomy for Sagittal Craniosynostosis. *J Neurosurg Pediatrics*. **5** , 131-135
- Abdallah BM, Haack-Sorensen M, Fink T, et al. 2006. Inhibition of osteoblast differentiation but not adipocyte differentiation of mesenchymal stem cells by sera obtained from aged females. *Bone*.; 39: 181–8.
- Aghaloo, T., Cowan, C. M., Chou, Y. F., Zhang, X., Lee, H., Miao, S., Hong, N., Kuroda, S., Wu, B., Ting, K. and Soo, C. (2006) 'Nell1 induced bone regeneration in calvarial defects', *American Journal of Pathology*. doi:10.2353/ajpath.2006.051210.
- Anwar R, Turson K, Khan SA. 2008. Classification and Diagnosis in Orthopaedic Trauma. New York. 21-23.
- Appaix,F., Nissou,M, F., Sanden,B., Dreyfus,M., Berger,F., Issartel,J, P., Wion, D. 2014. Brain Mesenchymal Stem Cells: The other stem cells of the brain. *World J Stem Cells* ; 6(2): 134-143.
- Aprilisna M, Sunendar B, Widodo H.B, Aditya C, 2015. Karakteristik dan Aktivitas Antibakteri Scaffold Membran Cangkang Telur yang Diaktivasi Karbonat Apatit. *Maj Ked Gi Ind*; 1(1):59-67
- Arvidson K, Abdallah BM, Applegate LA, Baldini N, Cenni E, et all. 2011. Bone Regeneration and Stem Cell in *Journal of Cellular and Molecular Medicine*. Vol 15. Pp. 718-746.
- Aydin, H, M., Korkusuz, P., Vargel, I., Kilic,E ., Guzel, E., Ucgan, D., Piskin, E. 2011. A 6-Month In Vivo Study of Polymer/Mesenchymal Stem Cell Constructs For Cranial Defects. *Journal of Bioactive and Compatible Polymers* **26(2)** , 207–221.

MC, Reis RL, Claase MB, et al. Development and properties of polycaprolactone/hydroxyapatite composite biomaterials. *J Mater*



Sci Mat Med. 2003; 14: 103–7.

Bacca, W.JJr and Linda M Wood. 1990. *Color Atlas of Veterinary Histology*. Lea and Febriger, Philadelphia, London.

Baptista, L, S., Amaral, R, J, F., Carias, R, B, V., Aniceto, M., Claudio-da-Silva, C., Borojevic, R. 2009. An Alternative Method for The Isolation of Mesenchymal Stromal Cells Derived From Lipoaspirate Samples. International Society for Cellular Therapy. Vol. 11, No. 6, 706–715.

Barleon B, Sozzani S, Zhou D, Weich HA, Mantovani A, Marme D (1996). Migration of human monocytes in response to vascular endothelial growth factor (VEGF) is mediated via the VEGF receptor flt-1. Blood 87:3336-3343.

Bhang SH, Lee S, Shin LJ, Lee TJ, Jang HK, Kim BS, 2014. “Efficacious and clinically relevant conditioned- medium of human adipose-derived stem cells for therapeutic angiogenesis,” Molecular Therapy, vol. 22, no. 4, p. 862,

Barone CM, Jimenez DF. Split-thickness calvarial grafts in young children. J Craniomaxillofac Surg. 1997;8(1):43-47.

Barry FP, Murphy JM. Mesenchymal stem cells: clinical applications and biological characterization. Int J Biochem Cell Biol. 2004; 36: 568–84.

Baptista, L, S., Amaral, R, J, F., Carias, R, B, V., Aniceto, M., Claudio-da-Silva, C., Borojevic, R. 2009. An Alternative Method for The Isolation of Mesenchymal Stromal Cells Derived From Lipoaspirate Samples. International Society for Cellular Therapy. Vol. 11, No. 6, 706–715.

Beaumont, J. Graham. 1983. Introduction to Neuropsychology. New York: The Guilford Press, 314 pages.

Behr B, Tang C, Germann G, Longaker M.T, Quarto N, 2011. Locally applied VEGFA increases the osteogenic healing capacity of human adipose derived stem cells by promoting osteogenic and endothelial differentiation. Stem Cells; 29(2): 286–296.

, Keshel S et al, 2015. Bone reconstruction in rat calvarial defects chitosan/hydroxyapatite nanoparticles scaffold loaded with



unrestricted somatic stem cells. *Artificial Cells, Nanomedicine, and Biotechnology*; 43:112–116

Bianco P, Riminucci M, Gronthos S, et al. Bone marrow stromal stem cells: nature, biology, and potential applications. *Stem Cells*. 2001; 19: 180–92.

Bruce JN, Bruce SS. Preservation of bone flaps in patients with postcraniotomy infections. *J. Neurosurg*. 2003;98(6):1203.

Bigi, M. M. P., Lewicki, M., Ubios, A. M. and Mandalunis, P. M. (2011) 'Experimental model of distraction osteogenesis in edentulous rats', *Brazilian Oral Research. Sociedade Brasileira de Pesquisa Odontológica*, 25(3): 217–224.

Boom R, Sol CJA, Salimans MMM, Jansen CL, 1990. Rapid and Simple Method for Purification of Nucleic Acids. *Journal of Clinical Microbiology*, 28;3: 495-503.

Bruder SP, Fink DJ, Caplan AI. Mesenchymal stem cells in bone development, bone repair, and skeletal regeneration therapy. *J Cell Biochem*. 1994; 56: 283–94.

Buravkova, L, B., Grinakovskaya, O, S., Andreeva, E, R., Zhambalova, A, P., Kozionova, M, P. 2008. Characteristics of Human Lipoaspirate-Isolated Mesenchymal Stromal Cells Cultivated under Lower Oxygen Tension. *Cell and Tissue Biology*, Vol. 3, No. 1: 23–28.

Chiarini L, Figurelli S, Pollastri G. Cranioplasty using acrylic material: a new technical procedure. *J Craniomaxillofac Surg*. 2004;32(1):5-9.

Chen, Y., Wang, G., Zeng, I. 2011. Adipose Tissue or Bone Marrow, Store for Purchasing Mesenchymal Stem Cell. *Circulation Journal, Official Journal of The Japanese Circulation Society*. **Vol 75**. 2060-2061.

Chen YC, Chang YW, Tan KP, Shen YS, Wang YH, Chang CH. 2018. Can Mesenchymal Stem Cells and their conditioned medium assist

inflammatory chondrocytes recovery?

<https://doi.org/10.1371/journal.pone.0205563>.

Chen S, Finne-Wistrand A, Albertsson A-C, et al. Osteogenic



differentiation in rat bone marrow derived stromal cells on refined biodegradable polymer scaffolds. *J Bioact Compat Pol.* 2010; 25: 207–23.

De Coppi P, Bartsch G Jr, Siddiqui MM, et al. Isolation of amniotic stem cell lines with potential for therapy. *Nat Biotechnol.* 2007; 25: 100–6.

Deckers MM, van Bezooijen RL, van der Horst G, et al. Bone morphogenetic proteins stimulate angiogenesis through osteoblast-derived vascular endothelial growth factor A. *Endocrinology.* 2002; 143: 1545–53.

Dewi AH, Triawan A, 2011. The Newly Bone Formation with Carbonate Apatite – Chitosan Bone Substitute in the Rat Tibia. *The Indonesian J Dent Res*, Vol 1 no:3.

Du Z, Wei C, Cheng K, et al. 2013. “Mesenchymal stem cell- conditioned medium reduces liver injury and enhances regeneration in reduced-size rat liver transplantation,” *Journal of Surgical Research*, vol. 183, no. 2, pp. 907–915,

Dimitrov P, Dyulgerova E, Ilieva R et al, 2017. Bone regeneration Critical Size calvarial defek in rats using innovative nano comp[osite material of chitosan / nannohydroxyaptite composite. *Tradition and modernity in veterinary medicine.* vol. 2; 1(2): 17–20.

Erlina M. 2013 .Hydrogel Scaffold for Bone Tissue Engineering Application. *IDJ*, Vol.2. No.2.51-56.

Eufinger H, Wehmo'ller M. 2002 Microsurgical tissue transfer and individual computer-aided designed and manufactured prefabricated titanium implants for complex craniofacial reconstruction. *Scand J Plast Reconstr Surg Hand Surg.* 36(6):326-331.

Feeman, Timothy G. 2010. *The Mathematics of Medical Imaging: A Beginner's Guide.* Springer Undergraduate Texts in Mathematics and Technology. Springer: 46 -53.

Frankel G, Newton SM, Schoolnik GK. 1989. Unique sequences in the region VI of the flagellin gene of *Salmonella typhi*. *Mol Microbiol.* 13:1379-1383.



- Gordon CR, Fisher M, Liauw J, Lina I, Puvane- sarajah V, Susarla S, Coon A, Lim M, Quinones- Hinojosa A, Weingart J, Colby G, Olivi A, Huang J. 2014. Multidisciplinary Approach for Improved Outcomes in Secondary Cranial Reconstruction: Introducing the Pericranial-onlay Cranioplasty Technique. *J Neurosurgery*. 27.
- Gray H. 2000. *Anatomy of Human Body*. Philadelphia. Lea & Febiger. 551-83.
- Greene WB. 2008. *Netter's Orthopaedics*. 1st ed., Philadelphia, Elsevier, 25-34.
- Grant GA, Jolley M, Ellenbogen RG, Roberts TS, Gruss JR, Loeser JD. Failure of autologous bone-assisted cranioplasty following decompressive craniectomy in children and adolescents. *J Neurosurg*. 2004;100(2 Suppl Pediatrics):163-168.
- Grosso A, Burger MG, Lunger A, Scafer DJ, Banfi A, Maggio N, 2017. It Takes Two to Tango: Coupling of Angiogenesis and Osteogenesis for Bone Regeneration in *Frontiers in Bioengineering and Biotechnology*. Switzerland, Vol.5, Art.68, p. 1-7.
- Geiger F, Bertram H, Berger I, Lorenz H, Wall O, et al. (2005) Vascular endothelial growth factor gene-activated matrix (VEGF165-GAM) enhances osteogenesis and angiogenesis in large segmental bone defects. *J Bone Miner Res* 20: 2028-2035.
- Gerber HP, Vu TH, Ryan AM, Kowalski J, Werb Z, Ferrara N (1999). VEGF couples hypertrophic cartilage remodeling, ossification and angiogenesis during endochondral bone formation. *Nature Med* 5:623-628.
- Gronthos S, Zannettino AC, Hay SJ, et al. Molecular and cellular characterisation of highly purified stromal stem cells derived from human bone marrow. *J Cell Sci*. 2003a; 116: 1827–35.
- Guarino V, Causa F, NettiPA, et al. The role of hydroxyapatite as solid signal performance of PCL porous scaffolds for bone tissue regeneration. *J Biomed Mater Res B*. 2008; 86: 548–57.



- Gürkan A,Emingil G,Saygan BH,et al. .2008. Gene polymorphism of matrix metalloproteinase-2,-9 and -12 in periodontal health and severe chronic periodontitis. Arch Oral Biol.2008;53:337-345.
- Halim D, Murti H, Sandra F, Boediono A, et all. 2010. Stem Cell Dasar teori dan aplikasi klinis. Erlangga.
- Harris DA, Fong AJ, Buchanan EP, Monson L, Khecovan D, Lam S. 2014. History of Synthetic materials in alloplastic cranioplasty. Neurosurg Focus. 36. 1-5.
- Hatta M., Ratnawati, Tanaka M..et al. 2010. NRAMP1/SLC11A1 gene polymorphisms and host susceptibility to Mycobacterium tuberculosis and leprae in South Sulawesi, Indonesia. Southeast Asian J. Trop Med Public Health. 41 ;2 : 386-394,
- Hatta M., Smits H.L. 2007. Detection of Salmonella typhi by nested Polymerase Chain Reaction in blood, urine and stool samples. American J. Tropical Medicine Hygiene. 76;139-143
- He, X., Dziak, R., Yuan, X., Mao,K.,Genco, R.,Swihart, M., Sarkar, D., Li, C.,Wang,C.,
 Lu, L., Andreadis, S. and Yang, S. (2013) 'BMP2 Genetically Engineered MSCs and EPCs Promote Vascularized Bone Regeneration in Rat Critical-Sized Calvarial Bone Defects', *PLoS ONE*. doi: 10.1371/journal.pone.0060473.
- Head Trauma in Advanced Trauma Life Support for Doctors, 2014. Student Course Manual . 9th edition. American College of Surgeons .176-201.
- Hiratsuka S, Minowa O, Kuno J, Noda T, Shibuya M (1998). Flt-1 lacking the tyrosine kinase domain is sufficient for normal development and angiogenesis in mice. Proc Natl Acad Sci U S A 95:9349-9354
- Hiroshi T, Keisuke A, Atsushi T, Xuewen D, Kazuo W. 2017. Conditioned Medium of Human Immortalized Mesenchymal Stem Cells as a Novel Therapeutic Tool to Repair Damaged Tissues. Journal of Neuroscience and Neuroengineering, Vol.4, No1,pp.9-12.
- Akishige, Saito Takashi, Li Andrew, Sato Keisuke, Tabata Suhiko, Jarrahay Reza, 2014. Stimulation of bone regeneration



following the controlled release of water-insoluble oxysterol from biodegradable hydrogel. *Biomaterials*; 35:5565-5571.

Hokugo Akishige, Sawada Yasunori, Hokugo Rie, Yasuhiko T, et al 2007. Controlled release of platelet growth factors enhances bone regeneration at rabbit calvaria. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*; 104:44-48.

Ho JYC, Lai W, Li M et al, 2012. "Reversal of endothelial progenitor cell dysfunction in patients with type 2 diabetes using a conditioned medium of human embryonic stem cell- derived endothelial cells," *Diabetes/Metabolism Research and Reviews*, vol. 28, no. 5, pp. 462–473.

Hutchinson PJ, Corteen E, Czosnyka M, et al. 2006. Decompressive craniectomy in traumatic brain injury: the randomized multicenter RESCUEicp study (www.RESCUEicp.com). *Acta Neurochir Suppl*. 2006;96:17-20.

Ikeda E, Hirose M, Kotobuki N, et al. 2006. Osteogenic differentiation of human dental papilla mesenchymal cells. *Biochem Biophys Res Commun*. 342: 1257–62.

Irina M, Pelin, Stelian S. Maier, et al. 2009. Preparation and characterization of a hydroxyapatite collagen composite as component for injectable bone substitute. *Mater Sci Engin*. 29: 2188–94

Ika Dwi Ana. 2014. Modul singkat pengenalan Gama – CHA. Carbonate Hydroxyapatite: 1-53.

Illouz Yves-Gerard, Sterodimas Aris, 2011. *Adipose Stem Cells and Regenerative Medicine*. Springer.

Inoue T, Sugiyama H, Hattori H, Wakita H, Wakabayashi T, Ueda M, 2013. "Stem cells from human exfoliated deciduous tooth-derived conditioned medium enhance recovery of focal cerebral ischemia in rats," *Tissue Engineering A*, vol. 19, no. 1-2, pp. 24–29.

The use of platelet-rich plasma in bone reconstruction therapy. *materials*. 2009; 30: 4956–66.

P, Vogel J, Geiger F, et al. The effect of platelet rich plasma on



healing in critical-size long-bone defects. *Biomaterials*. 2008; 29: 3983–92.

Karsenty G (1999). *The genetic transformation of bone biology*. *Genes Dev* 13:3037-3051

Koch S, Tugues S, Li X, Gualandi L, Claesson WL (2011). Signal transduction by vascular endothelial growth factor receptors. *Biochem J* 437:169-183.

Koh YS, Chang K, Kim PJ, et al. 2008. A close relationship between functional polymorphism in the promoter region of matrix metalloproteinase-9 and acute myocardial infarction. *Int J Cardiol* .127: 430-432.

Kolar M, Pachi J & Tomashova H. 2008. Dynamics of matrix-metalloproteinase 9 after brain trauma –result of a pilot study. *Acta Neurochir Suppl*, 102,373-376.

Komolafe EO, Shokombi MT, Malomo AO, Oluwatosin OM, Adeolu AA, Tahir C. 2003. Encephalocele and associated skull defects. *WAJM*. 22. 35 – 37.

Kroeze RJ, Knippenberg M, Helder MN. Osteogenic differentiation strategies for adipose-derived mesenchymal stem cells. *Methods Mol Biol* 702:233–248.

Kumar S, Dewi AH, Lystiarifah D, Ika DA. 2011. Remodeling Capacity of Femoral Bone Defect by POP-CHA Bone Substitute : A Study in Rats' Osteoclast. *The Indonesian J Dent Res*, Vol 1 no:2.

Kurita J, Miyamoto M, Ishii Y, Aoyama J, Takagi G, Tabata Y, et al 2011. Enhanced Vascularization by Controlled Release of Platelet-Rich Plasma Impregnated in Biodegradable Gelatin Hydrogel. *Ann Thorac Surg*; 92:837– 844

Lee C, Antonyshyn OM, Forrest CR. 1995. Cranioplasty: indications, technique, and early results of autogenous split skull cranial vault construction. *J Craniomaxillofac Surg*. 23(3):133-142.

el S, Jodicke A, Christophis P. Autologous stem cells (adipose) and in glue used to treat widespread traumatic calvarial defects: case



- report. *J Cranio- maxillofac Surg.* 2004;32(6):370-373.
- Levi B, James AW, Nelson ER et al. Human adipose derived stromal cells heal critical size mouse calvarial defects. *PLoS One* 2010;5:11-17.
- Li P, Bai Y, Yin G, Pu X, Huang Z, et al. (2013) Synergistic and sequential effects of BMP-2, bFGF and VEGF on osteogenic differentiation of rat osteoblasts. *J Bone Miner Metab.*
- Li R, Stewart DJ, von Schroeder HP, Mackinnon ES, Schemitsch EH (2009) Effect of cell-based VEGF gene therapy on healing of a segmental bone defect. *J Orthop Res* 27: 8-14.
- Liu G, Zhao L, Zhang W, Cui L, Liu W, Cao Y. Repair of goat tibial defects with bone marrow stromal cells and beta- tricalcium phosphate. *J Mater Sci Mater Med* 2008;19: 2367-76.
- Liu Y, Berendsen AD, Jia S, Lotinun S, Baron R, Ferrara N, Olsen BR (2012). Intracellular VEGF regulates the balance between osteoblast and adipocyte differentiation. *J Clin Invest*122:3101-3113.
- Li W, Keller G (2000) VEGF nuclear accumulation correlates with phenotypical changes in endothelial cells. *J Cell Sci* 113 (Pt 9):1525-1534.
- Logan R, Richmond VA, The Role of osteoblast dan osteoclast in osteogenesis. 1942. *American Journal of Orthodontics and Oral Surgery.* BVol 28, issue 9: 561-566.
- Mahanani Erlina, 2013. *Hydrogel Scaffold for Bone Tissue Engineering Application.* IDJ; Vol. 2(2):51-5
- Matos et al. Histomorphometric Evaluation of Bone Healing in Rabbit Fibular Osteotomy Model Without Fixation.
- Mao JJ, Giannobile WV, Helms JA et al. Craniofacial tissue engineering by stem cells. *J Dent Res* 2006;85:966–979.
- Neman, J., Hambrecht, A., Cadry, C. and Jandial, R. (2012) 'Stem cell-mediated osteogenesis: Therapeutic potential for bone tissue engineering', *Biologics: Targets and Therapy.* doi: 10.1089/btt.2014.7.2147/BTT.S22407.
- Kaku M, Amano H, et al. 1999. Vascular endothelial growth factor



- can substitute for macrophage colony stimulating factor in the support of osteoclastic bone resorption. *J Exp Med.* 190: 293–8.
- Oest MEDK, Kong HJ, Mooney DJ, Guldberg RE. 2007. Quantitative assessment of scaffold and growth factor-mediated repair of critically sized bone defects. *J Orthop Res* 2007;25:941-50.
- Olsen BR, Reginato AM, Wang W (2000). *Bone development.* *Annu Rev Cell Dev Biol* 16:191-220.
- Patel S, et al. 2013. Treatment with Platelet Rich Plasma is More Effective Than Placebo for Knee Osteoarthritis. *J Amer Sport Med.* 41(2):356-64.
- Paulo A, Castrosilva I.I, Oliveira D.F et al, 2011. Repair of Critical-Size Defects with Autogenous Periosteum-Derived Cells Combined with Bovine Anorganic Apatite/Collagen: An Experimental Study in Rat Calvaria. *Braz Dent J* 22(4):322-328.
- Patil AS, Sable RB, Kothari RM (2012) Occurrence, biochemical profile of vascular endothelial growth factor (VEGF) isoforms and their functions in endochondral ossification. *J Cell Physiol* 227: 1298-1308.
- Pawitan JA. 2014. Prospect of Stem Cell Conditioned Medium in Regenerative Medicine. *Biomed Research international.* Hindawi PC.
- Peng H, Wright V, Usas A, Gearhart B, Shen HC, et al. (2002) Synergistic enhancement of bone formation and healing by stem cell expressed VEGF and bone morphogenetic protein-4. *J Clin Invest* 110: 751-759.
- Phan TCA, Xu J, Zheng MH. 2004. Interaction between osteoblast and osteoclast: Impact in bone disease. *Histology and Histopathology.* <http://www.hh.um.es>. Vol 19. 1325-1344.
- Phillips AM. Overview of the fracture healing cascade. *Injury.* 2005; 36: S5–7.
- Pittenger MF, Mackay AM, Beck SC, et al. 1999. Multilineage potential of adult human mesenchymal stem cells. *Science.* 284: 143–7.
- Andersen TE, Bollerslev J, et al. Patients with high bone mass phenotype exhibit enhanced osteoblast differentiation and inhibition of osteogenesis of human mesenchymal stem cells. *J Bone Miner Res.*



2007; 22: 1720–31.

Riyadina W, Suhardi, Permana M. 2009. The Pattern and sociodemography determinant of traffic injury in Indonesia. *Majalah Kedokteran Indonesia* . 59 (10) : 464-472.

Rocha FS, et al. 2011. Bovine Anorganic Bone Graft Associated with Platelet Rich Plasma Histologic Analysis in Rabbit Calvaria. *J Oral Impl.* 37(5): 511-8.

Sanan A, Haines SJ. 1997 Repairing holes in the head: a history of cranioplasty. *Neurosurgery.*;40(3):588-603.

Schieker M, Seitz H, Drosse I, et al. 2006. Biomaterials as scaffold for bone tissue engineering. *Eur J Trauma.* 2: 114–24.

Samuelson, DA. 2007. *Textbook of Veterinary Histology*. Saunders, Elsevier.

Schaffler A, Buchler C, 2007. Concisereview: adipose tissue derived stromal cells basic and clinical implications for novel cell-based therapies. *Stem Cells*; 25(4):818-827.

Senduk KC, Oley MCh, Pontoh V. 2015. Gambaran Kualitas hidup pasien defek kalvaria pasca bedah di RSUP Prof RD Kandou Manado, September 2014- September 2015. SKRIPSI Mahasiswa FK UNSRAT.

Serrano J, Romo E, Bermudez M et al, 2013. *Bone Regeneration in Rat Cranium Critical Size Defects Induced by Cementum Protein 1 (CEMP1)*. PLOS ONE; 8(11):1-10.

Shiffman A, Giuseppe A, et al 2014. *Stem cells in aesthetic procedures: Art, science, and clinical techniques*. Springer.

Shikinami Y, Okazaki K, Saito M, et al. 2006. Bioactive and bioresorbable cellular cubic composite scaffolds for use in bone reconstruction. *J R Soc Interface.* 3: 805–21.

Shi S, Gronthos S. 2003. Perivascular niche of postnatal mesenchymal stem cells in human bone marrow and dental pulp. *J Bone Miner Res.* 18:696–704.



- Singh AK, Mohapatra DP, Kumar V. 2011. Spectrum of primary bone grafting in cranio maxillofacial trauma at tertiary care centre in India. 44:1: 29-35.
- Springer IN, Acil Y, Kuchenbecker S, Bolte H, Warnke PH, Abboud M, et al. 2005. Bone graft versus BMP-7 in a critical size defect of cranioplasty in a growing infant model. *Bone* 37:563-9.
- Sriramulu S, Banarjee A, Liddo RD, Jothimani G, Gopinath M, Marugesan R, Marotta F, Pathak S. 2017. Concise Review on Clinical Application of Conditioned Medium derived from human umbilical Cord Mesenchymal Stem Cells (UCMSCs). *International Journal of Hematology-Oncology and Stem Cell Research*: 230-234.
- Stephan S.J, Tholpads S.S, Gross B et al, 2010. *Injectable Tissue-Engineered Bone Repair of a Rat Calvarial Defect*. *Laryngoscope*; 120(5): 895–901.
- Suenaga, H., Furukawa, K. S., Suzuki, Y., Takato, T. and Ushida, T. (2015) Bone regeneration in calvarial defects in a rat model by implantation of human bone marrow-derived mesenchymal stromal cell spheroids', *Journal of Materials Science: Materials in Medicine*. doi: 10.1007/s10856-015-5591-3.
- Suwanwela C, Suwanwela N. 1971. A morphological classification of sincipital encephalomeningoceles. *J Neurosurg.*,36(2): 201-11.
- Spicer, P. P., Kretlow, J. D., Young, S., Jansen, J. A., Kasper, F. K. and Mikos, A. G. (2012) 'Evaluation of bone regeneration using the rat critical size calvarial defect', *Nature Protocols*. doi: 10.1038/nprot.2012.113.
- Szpalski C, Barr J, Wetterau M, Saadeh P, Warren S. Cranial Bone defects: current and future strategies. *Neurosurgery Focus* 2010, 29: 1-11.
- Tahir S, Shuja A. 2011. *Surgical Principle: Head Injury Pathology* Faisalabad.Pakistan.: 84-95.

L and Chen Z. 2009. Differential gene expression between asymptomatic HBV carriers and normal adults. *Hepatobiliary Increat Dis Int*.Vol 8.No 4: 383-388.



- Thesleff T, Lehtimaki K, Niskakangas T et al, 2011. Cranioplasty With Adipose-Derived Stem Cells and Biomaterial: A Novel Method for Cranial Reconstruction. *Neurosurgery* 68:1535–1540.
- Thor A, Franke-Stenport V, Johansson CB, et al. 2007. Early bone formation in human bone grafts treated with platelet-rich plasma: preliminary histomorphometric results. *Int J Oral Maxillofac Surg.* 36: 1164–71.
- Timmers L, Lim SK, Arslanetal F. 2008., “Reduction of myocardial infarct size by human mesenchymal stem cell conditioned medium,” *Stem Cell Research*, vol. 1, no. 2, pp. 129–137.
- Timmers L, Lim SK, Hofer IE et al. 2011., “Human mesenchymal stem cell-conditioned medium improves cardiac function following myocardial infarction,” *Stem Cell Research*, vol. 6, no. 3, pp. 206–214.
- Tobita M, Uysal AC, Ogawa R, et al. 2008. Periodontal tissue regeneration with adipose derived stem cells. *Tissue Eng Part A.* 14: 945–53.
- Torner J, Choi S, Barnes T. *Epidemiology of Head Injuries in Traumatic Brain Injury – Thieme* 1999: 9-25.
- Wagner W, Wein F, Seckinger A, et al. 2005. Comparative characteristics of mesenchymal stem cells from human bone marrow, adipose tissue, and umbilical cord blood. *Exp Hematol.* 33: 1402–16.
- Widowati W, Widyanto RM. 2013. Sel Punca sebagai transformasi Alternatif Terapi. *Zenit Vol.2 no:1:* 1-5.
- Widowati W, Wijaya L, Bachtiar I, et.all. 2014. Effect of oxygentension on proliferation and characteristics og Wharton’s Jelly derived mesenchymal stem cells. *J-bgm* 6: 43-48.
- Widowati W, Wijaya L, Murti H et al, 2015. Conditioned medium from normoxia (WJMSCs-norCM) and hypoxia-treated WJMSCs (WJMSCs-hypoCM) in inhibiting cancer cell proliferation. *Biomarkers and Genomic Medicine;* 7:8-17.
- Wang X, Jung JC, Asahi M, et al. 2000. Effects of matrix metalloproteinase–gene knock-out on morphological and motor outcomes after traumatic brain injury. *J Neurosci.* 20: 7037–7042.



- World Health Organization (WHO). World report on road traffic injury prevention. Ed.Peden M et al .Geneva 2004
- Xu A, Zhuang C, Xu S, He F, Xie L et al, 2018. Optimized Bone Regeneration in Calvarial Bone Defect Based on Biodegradation-Tailoring Dualshell Biphasic Bioactive Ceramic Microspheres. *Scientific Reports*; 8:3385.
- Yajima T.,Yagihashi A., Furuya D.et al Quantitative reverse transcription-PCR assay of the RNA component of human telomerase using the TaqMan fluorogenic detection system. *Clinical Chemistry* 1998;44:12: 2441–2445
- Zhang B,Henney A,Eriksson P,et al. 1999. Genetic variation at the matrix metalloproteinase -9 locus on chromosome 20q12.2-13.1.Hum Genet, 105: 418-423.
- Zhang B,Ye S,Herrmann SM et al. 1999. Functional polymorphism in the regulatory region of gelatinase B gene in relation to severity of coronary atherosclerosis.*Circulation*, 99: 1788-1794.
- Zhang Z, Chen J, Jin D. 1998. Platelet-derived growth factor (PDGF)-BB stimulates osteoclastic bone resorption directly: the role of receptor beta. *Biochem Biophys Res Commun.*; 251: 190–4.
- Zong C, Xue D, Yuan W, Wang W, Shen D et al 2010. Reconstruction of rat calvarial defects with human mesenchymal stem cells and osteoblast-like cells in poly-lactic-co-glycolic acid scaffolds. *European Cells and Materials*; vol 20:109-120.
- Zhou BR, Xu Y, Guo SL et al. 2013, “The effect of conditioned media of adipose-derived stem cells on wound healing after ablative fractional carbon dioxide laser resurfacing,” *BioMed Research International*, vol. 20, Article ID 519126, p. 9
- Zou J, Wang G, Geng D et al. 2011. A novel cell-based therapy in segmental bone defect: Using adipose derived stromal cells. *J Surg Res* 2011; 131:76–81.
- ZhuM,AshjianP,etal. 2002. Human adipose tissue is a source of multipotent stem cells. *Mol Biol Cell*.13(12):4279-4295.





Zwingly P, Oley MCh, Limpeleh HP. 2015. Gambaran kualitas hidup pasien cedera kepala pasca operasi Januari 2012 – Desember 2013 di RSUP Prof RD Kandou Manado. SKRIPSI Mahasiswa FK UNSRAT.



LAMPIRAN

Rekomendasi Etika Penelitian

	KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI UNIVERSITAS HASANUDDIN FAKULTAS KEDOKTERAN RSPTN UNIVERSITAS HASANUDDIN RSUP Dr. WAHIDIN SUDIROHUSODO MAKASSAR KOMITE ETIK PENELITIAN KESEHATAN Sekretariat : Lantai 3 Gedung Laboratorium Terpadu JL.PERINTIS KEMERDEKAAN KAMPUS TAMALANREA KM.10 MAKASSAR 90245. Contact Person: dr. Agussalim Bukhari, MMed, PhD, SpGK Telp. 081241850858, 0411 5780103, Fax : 0411-581431		
REKOMENDASI PERSETUJUAN ETIK Nomor : 578 / H4.8.4.5.31 / PP36-KOMETIK / 2017 Tanggal: 22 Agustus 2017			
Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan Dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :			
No Protokol	UH17080562	No Sponsor Protokol	
Peneliti Utama	dr. Maximillian Christian Oley, SpBS	Sponsor	Pribadi
Judul Peneliti	Pengaruh penambahan Sel Punca Dalam Karbonat Apatit terhadap Kadar VEGF Serum dan Ekspresi m-RNA Gen VEGF pada kualitas penutupan Defek Tulang Kepala Tikus Putih		
No Versi Protokol	1	Tanggal Versi	21 Agustus 2017
No Versi PSP		Tanggal Versi	
Tempat Penelitian	Laboratorium Biokimia Fakultas Kedokteran Universitas Hasanuddin Makassar		
Dokumen Lain			
Jenis Review	<input checked="" type="checkbox"/> Exempted <input type="checkbox"/> Expedited <input type="checkbox"/> Fullboard Tanggal	Masa Berlaku	Frekuensi review lanjutan
		22 Agustus 2017 sampai 22 Agustus 2018	
Ketua Komisi Etik Penelitian	Nama Prof.Dr.dr. Suryani As'ad, M.Sc.,Sp.GK (K)	Tanda tangan	Tanggal
Sekretaris Komisi Etik Penelitian	Nama dr. Agussalim Bukhari, M.Med.,Ph.D.,Sp.GK (K)	Tanda tangan	Tanggal

Kewajiban Peneliti Utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
- Menyerahkan Laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan Lapror SUSAR dalam 72 Jam setelah Peneliti Utama menerima laporan
- Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap 12 bulan untuk penelitian resiko rendah
- Menyerahkan laporan akhir setelah Penelitian berakhir
- Menyerahkan laporan penyimpangan dari protokol yang disetujui (protocol deviation / violation)
- Mematuhi semua peraturan yang ditentukan



Hasil Penanda Biologis VEGF

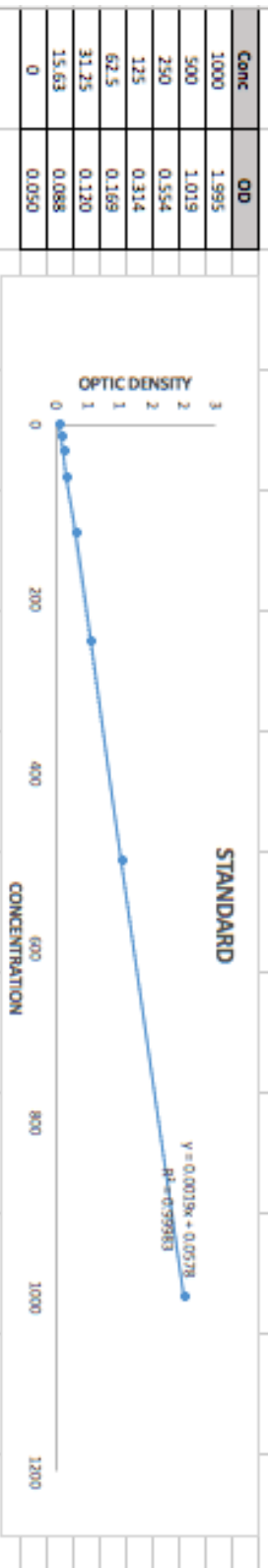
Kelompok	Waktu	Konsentrasi	No	KODE	Luas Luka	mRNA VEGF	Serum VEGF	Group
Kontrol	Mgg 0		1			9.076	33.441	
			2			10.437	65.177	
			3			11.106	89.173	
			4			9.647	45.826	
			5			10.147	52.019	
			6			10.488	66.210	
			7			10.361	56.405	
			8			10.638	72.402	
			9			9.336	38.086	
			10			11.008	86.593	
NaCl	Mgg 4	Scaffold A	1			9.742	48.664	NaCl 4 A
		Scaffold A	2			10.851	76.272	NaCl 4 A
		Scaffold B	3			9.545	43.246	NaCl 4 B
		Scaffold B	4			10.931		NaCl 4 B
	Mgg 8	Scaffold A	5			9.406	40.150	NaCl 8 A
		Scaffold A	6			10.750	73.176	NaCl 8 A
		Scaffold B	7			10.960	78.336	NaCl 8 B
		Scaffold B	8			9.164	35.505	NaCl 8 B
Stem Cell	Mgg 4	Scaffold A	1			10.917		SC 4 A
		Scaffold A	2					SC 4 A
	Mgg 4	Scaffold B	3			11.793	112.137	SC 4 B
		Scaffold B	4			11.266	84.271	SC 4 B
	Mgg 8	Scaffold A	5			12.097	107.234	SC 8 A
		Scaffold A	6				92.269	SC 8 A
		Scaffold B	7			11.504	100.526	SC 8 B
		Scaffold B	8			12.358	117.297	SC 8 B
Conditioning Mediu	Mgg 4	Scaffold A	1			10.393	60.791	CM 4 A
		Scaffold A	2					CM 4 A
	Mgg 4	Scaffold B	3			10.489	67.758	CM 4 B
		Scaffold B	4			11.780	105.428	CM 4 B
	Mgg 8	Scaffold A	5			11.438	94.849	CM 8 A
		Scaffold A	6					CM 8 A
		Scaffold B	7			10.298	59.243	CM 8 B
		Scaffold B	8			10.209	54.341	CM 8 B
Conditioning Mediu Stem Cell	Mgg 4	Scaffold A	1					CMSC 4 A
		Scaffold A	2					CMSC 4 A
	Mgg 4	Scaffold B	3			11.060	82.207	CMSC 4 B



Rat VEGFA / VEGF ELISA Kit Cat. No. LS-F2569

Mean / STD DEV OD	1	2	3	4	5	6	7	8	9	10	11	12
A	1.995	0.144	0.123	0.006	0.184	0.013	0.231	0.009	0.147	0.008	0.159	0.011
B	1.019	0.061	0.186	0.010	0.167	0.003	0.198	0.006	0.132	0.009	0.226	0.013
C	0.554	0.059	0.152	0.018	0.206	0.009	0.136	0.009	0.200	0.016	0.142	0.005
D	0.314	0.036	0.210	0.016	0.127	0.006	0.275	0.016	0.221	0.011	0.266	0.006
E	0.169	0.018	0.237	0.012	0.253	0.005	0.285	0.008	0.176	0.004	0.242	0.009
F	0.120	0.011	0.189	0.008	0.262	0.006	0.173	0.006	0.163	0.011	0.217	0.016
G	0.088	0.011	0.272	0.010	0.249	0.003	0.306	0.024	0.047	0.001	0.047	0.001
H	0.050	0.001	0.048	0.001	0.049	0.001	0.046	0.000	0.047	0.001	0.047	0.002

Sampe / Concentration (ng/ml)	1	2	3	4	5	6	7	8	9	10	11	12
A	HOL#1	1000	NO1	33.44125411	NO2	65.17743474	NO3	89.17308352	NO4	45.82610509	NO5	52.01853058
B	HOL#2	500	NO6	66.20950566	NO7	56.40483197	NO8	72.40193115	NO9	38.08557322	N10	86.59290623
C	HOL#3	250	A01	48.6643001	A02	76.27219708	A03	40.14971505	A04	73.17598433	B01	43.2459278
D	HOL#4	125	B03	78.33633891	B04	35.50539594	C03	112.1366614	C04	84.27074667	D01	107.2343245
E	HOL#5	62.5	D02	92.26929626	D03	100.52586936	D04	117.297016	E01	60.79113335	E03	94.84947355
F	HOL#6	31.25	F01	67.75761203	F02	105.4282004	F03	59.24302698	F04	54.34069014	H01	82.20660484
G	HOL#7	15.63	H02	110.588555	H03	98.71973948	H04	128.1337606	0	5.19422937	0	5.777440665
H	NEG	0	0	-5.261405208	0	-4.74536975	0	-6.035458394	0	-5.777440665	0	-5.777440665



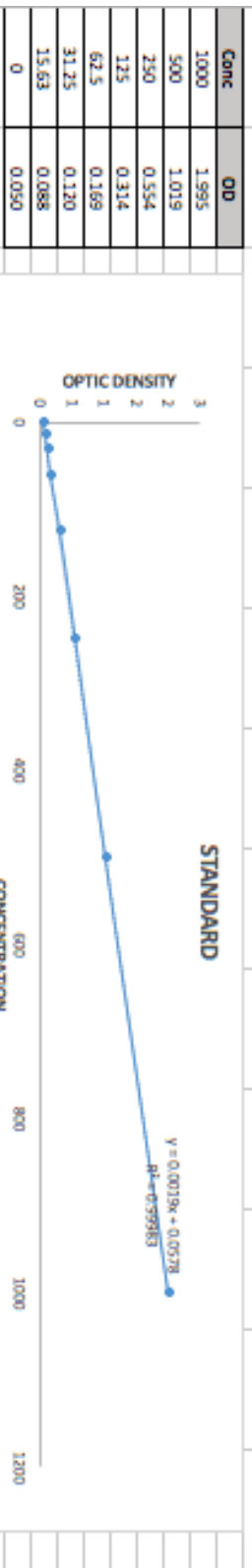


Optimization Software:
www.balesio.com

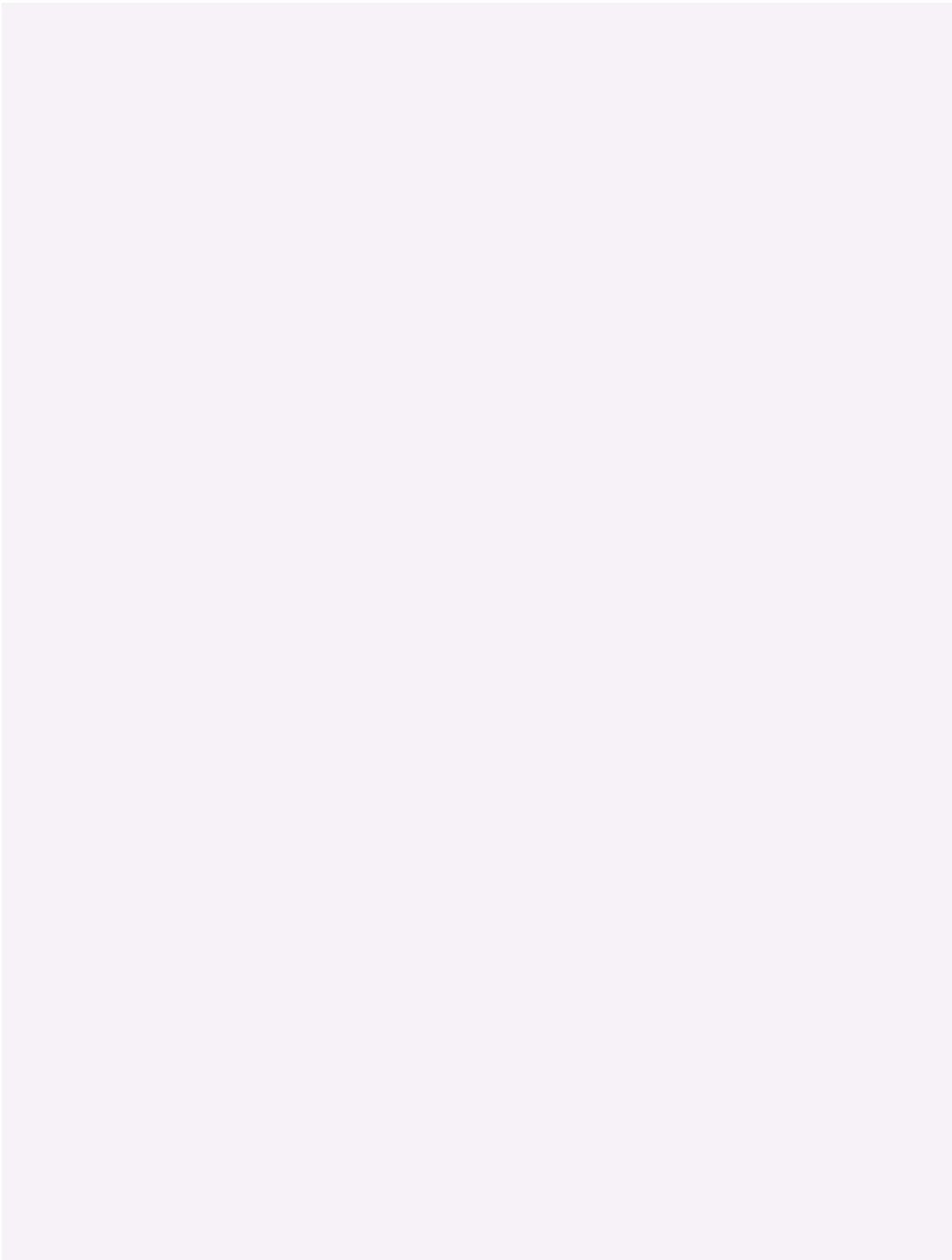
Rat VEGFA / VEGF ELISA Kit Cat. No. LS-F2569

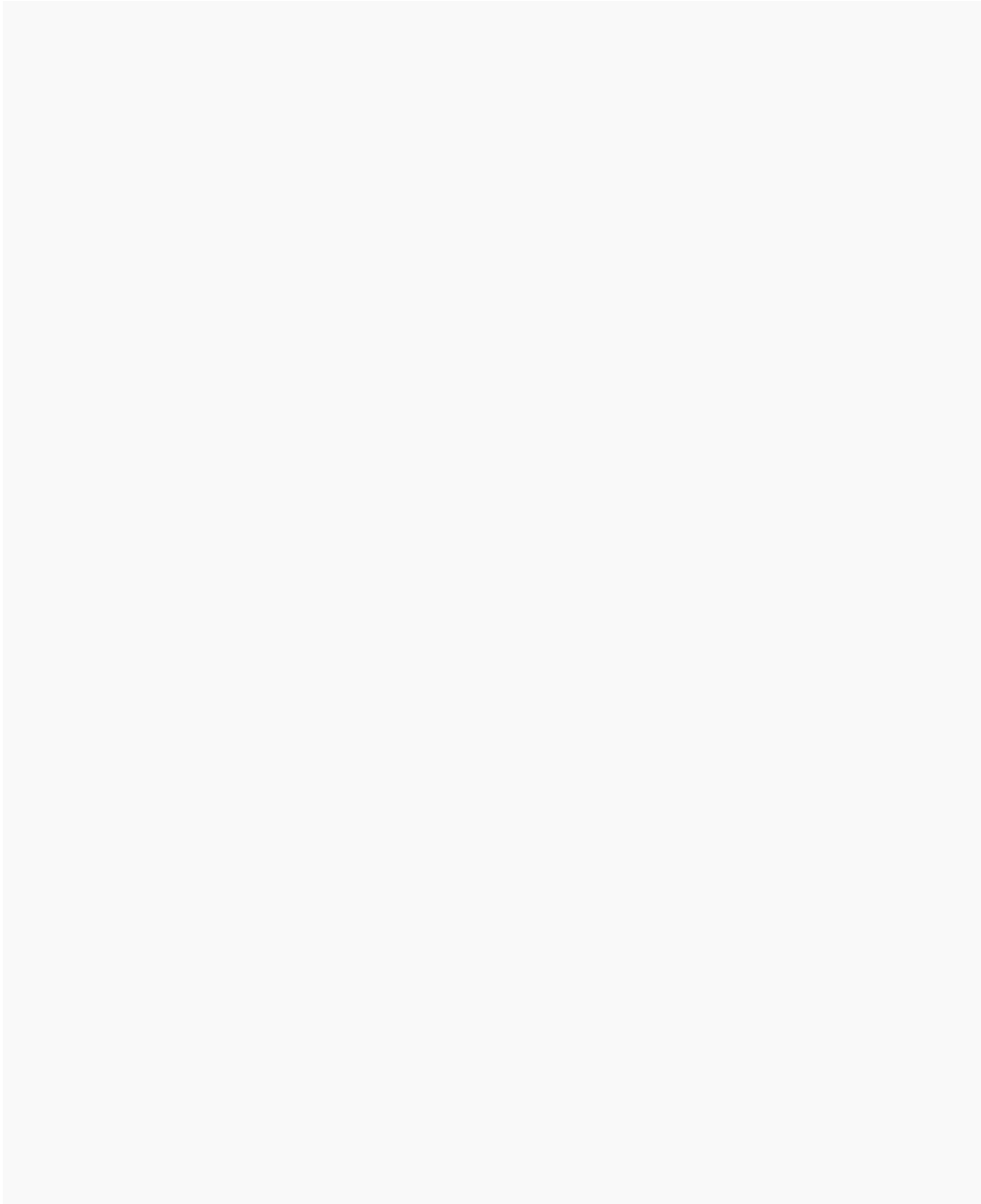
Mean / STD DEV OD	1	2	3	4	5	6	7	8	9	10	11	12
<>	1	2	3	4	5	6	7	8	9	10	11	12
A	1.995	0.144	0.123	0.006	0.184	0.013	0.231	0.009	0.147	0.008	0.159	0.011
B	1.019	0.061	0.186	0.010	0.167	0.003	0.198	0.006	0.132	0.009	0.226	0.013
C	0.554	0.059	0.152	0.018	0.206	0.009	0.136	0.009	0.200	0.016	0.142	0.005
D	0.314	0.036	0.210	0.016	0.127	0.006	0.275	0.016	0.221	0.011	0.266	0.006
E	0.169	0.018	0.237	0.012	0.253	0.005	0.285	0.008	0.176	0.004	0.242	0.009
F	0.120	0.011	0.189	0.008	0.262	0.006	0.173	0.006	0.163	0.011	0.217	0.016
G	0.088	0.011	0.272	0.010	0.249	0.003	0.306	0.024	0.047	0.001	0.047	0.001
H	0.050	0.001	0.048	0.001	0.049	0.001	0.046	0.000	0.047	0.001	0.047	0.002

Sampel / Concentration (ng/ml)	1	2	3	4	5	6	7	8	9	10	11	12
A	HQL#1	1000	N01	33.44125411	N02	65.17743474	N03	89.17308352	N04	43.82610509	N05	52.01853058
B	HQL#2	500	N06	66.20950566	N07	56.40483197	N08	72.40193115	N09	38.08557322	N10	86.59290623
C	HQL#3	250	A01	48.6643001	A02	76.27219708	A03	40.14971505	A04	73.17598433	B01	43.2459278
D	HQL#4	125	B03	78.33633891	B04	35.50539594	C03	112.1366614	C04	84.27074667	D01	107.2343245
E	HQL#5	62.5	D02	92.26929626	D03	100.5258636	D04	117.297016	E01	60.79113335	E03	94.84947355
F	HQL#6	31.25	F01	67.75761203	F02	105.4282004	F03	59.24302698	F04	54.34069014	H01	82.20660484
G	HQL#7	15.63	H02	110.588555	H03	98.71973948	H04	128.1337606	0	-5.519422937	0	-5.777440665
H	NEG	0	0	-5.261405208	0	-4.74536975	0	-6.034548394	0	-5.777440665	0	-5.777440665



Optimization Software:
www.balesio.com





Kegiatan Penelitian Perlakuan pada Tikus

