

DAFTAR PUSTAKA

- Ahmed, T. J., T. Montero-Melendez, M. Perretti, and C. Pitzalis. 2013. Curbing inflammation through endogenous pathways: focus on melanocortin peptides. *International J Inflammation*. p1-10.
- Aly, Z., K. Abbas, S. F. Kazim, F. Taj, and F. Aziz. 2009. Awareness of stroke risk factors, signs and treatment in a pakistani population. *J Pak Med Assoc*. 59(7): 495-499.
- Amantea, D., G. Nappi, G. Bernardi, G. Bagetta, and M. T. Corasaniti. 2008. Post-ischemic brain damage: pathophysiology and role of inflammatory mediators. *FEBS Journal*. 14: 14-18.
- American Heart Association. 2010. Heart Disease and Stroke Statistics. Available from: <http://www.americanheart.org/presenter.jhtml?identifier=3000090> [Accessed 9 Maret 2019]
- American Heart Association. 2015. Let's Talk About Ischemic Stroke. Available from: <http://www.americanheart.org/letstalkaboutstroke> [Accessed 9 Maret 2019]
- Aronsson, A. F., S. Spulber, L. M. Popescu, B. Winblad, C. Post, M. Oprica, and M. Schultzberg. 2006. α -Melanocyte stimulating hormone is neuroprotective in rat global cerebral ischemia. *Neuropeptides*. 40: 65-75.
- Bansal, S., K. S. Sangha, and P. Khatri. 2013. Drug treatment of acute ischemic stroke. *American J Cardiovascular Drugs: Drugs, Devices, and Other Interventions*. p2-8.
- Bhaskar, S., P. Stanwell, D. Cordato, J. Attia, and C. Levi. 2018. Reperfusion therapy in acute ischemic stroke: Dawn of a new era ?. *BMC Neurol*. 18(1): 8.
- Boden-Albala, B., R. L. Sacco, H. Lee, C. Grahame-Clarke, T. Rundek, M. V. Elkind, C. Wright, E. V. Giardina, M. R. DiTullio, S. Homma, and M. C. Paik. 2008. Metabolic syndrome and ischemic stroke risk: northern manhattan study. *Stroke*. 39(1): 30-35.
- Bruno, A., D. L. Kaelin, and E. Y. Yilmaz. 2000. The subacute stroke patient: hours 6 to 72 after stroke onset. *Management of Ischemic Stroke*. 53: 53-87.
- Caplan, L. R. 2009. *Caplan's Stroke A Clinical Approach*. 4th Ed. Saunder's An Imprint of Elsevier Inc. Philadelphia. 49-50.

- Catania, A. 2008. Neuroprotective actions of melanocortins: a therapeutic opportunity. *Trends in Neurosciences*. 31(7): 353-360.
- CCRC Farmasi UGM. 2016. Mekanisme dan Regulasi Apoptosis. Available from: <http://ccrc.farmasi.ugm.ac.id/wp-content/etiology-classification-and-epidemiology-of-stroke> [Accessed 30 Maret 2019]
- Chen, G., J. Frokiaer, M. Pedersen, S. Nielsen, Z. Si, Q. Pang, and H. Stodkilde-Jorgensen. 2008. Reduction of ischemic stroke in rat brain by alpha melanocyte stimulating hormone. *Neuropeptides*. 42: 331-338.
- Chiang, T., R. O. Messing, and W. H. Chou. 2011. Mouse model of Middle Cerebral Artery Occlusion. *J Visualized Exp JoVE*. 48(2761): 1-3.
- Chong, J. Y. and R. L. Sacco. 2005. Epidemiology of stroke in young adults: race/ethnic differences. *J Thrombosis and Thrombolysis*. 20(2): 77-83.
- Clark, W. M., B. J. Williams, K. A. Selzer, R. M. Zweifler, L. A. Sabounjian, and R. E. Gammans. 1999. A randomized efficacy trial of citicoline in patients with acute ischemic stroke. *Stroke*. 30(12): 2592-2597.
- Crowin, E. J. 2009. *Buku Saku Patofisiologi*. Buku Kedokteran EGC. Jakarta. p251.
- D'Agostino, G. and S. Diano. 2010. Alpha-melanocyte stimulating hormone: production and degradation. *J Mol Med*. 88: 1195-1201.
- Deb, P., S. Sharma, and K. M. Hassan. 2010. Pathophysiologic mechanisms of acute ischemic stroke: an overview with emphasis on therapeutic significance beyond thrombolysis. *Pathophysiology*. 17: 197-218.
- Dettori, J. 2010. The random allocation process: two thing you need to know. *Evidence Based Spine Care J*. 3: 7-9.
- Devinsky, O. and M. D'Esposito. 2004. *Neurology Cognitive and Behavioral Disorder*. Oxford University Press. New York USA.
- Dey, S., X. Li, R. Teng, M. Alnaeli, Z. Chen, H. Rogers, and C. T. Noguchi. 2016. Erythropoietin regulates POMC expression via STAT3 and potentiates leptin response. *J Mol Endocrinology*. 56: 55-67.
- Di Carlo, A. 2009. Human and economic burden of stroke. *Age and Ageing*. 38(1): 4-5.
- Dirnagl, U., C. Iadecola, and M. A. Moskowitz. 2005. Pathobiology of ischaemic stroke: an integrated view. *Trends in Neuroscience*. 22: 391-397.
- El Hajj, M., P. Salameh, S. Rachidi, and H. Hosseini. 2016. The epidemiology of stroke in the middle east. *European Stroke J*. 1(3): 180-198.

- El Sayed, I., A. Zaki, A. M. Fayed, G. M. Shehata, and S. Abdelmonem. 2016. A meta-analysis of the effect of different neuroprotective drugs in management of patients with traumatic brain injury. *Neurosurgical Rev.* 41(2): 427-438.
- Fandrey, J. 2004. Oxygen dependent and tissue specific regulation of erythropoietin gene expression. *American J Physiology, Regulatory, Integrative, and Comparative Physiology.* 286(6): 977-988.
- Feigin, V. L., G. A. Mensah, B. Norrving, C. J. L. Murray, and G. A. Roth. 2015. Atlas of the global burden of stroke (1990–2013): The GBD 2013 study. *Neuroepidemiology.* 45: 230-236.
- Fuadi, I. dan T. Bisri. 2015. Efek proteksi otak eritropoietin. *Jurnal Neuroanestesi Indonesia.* 4(2):149-156.
- Ginsberg, M. D. and R. Busto. 1998. Combating hyperthermia in acute stroke: a significant clinical concern. *Stroke.* 29(2): 529-534.
- Ginsberg, M. D., Y. Y. Palesch, M. D. Hill, R. H. Martin, C. S. Moy, W. G. Barsan, B. D. Waldman, D. Tamariz, K. J. Ryckborst, et al. 2013. High-dose albumin treatment for acute ischaemic stroke (ALIAS) part 2: A randomised, double-blind, phase 3, placebo-controlled trial. *Lancet Neurol.* 12(11): 1049-1058.
- Giuliani, D., S. Leone, C. Mioni, C. Bazzani, D. Zaffe, A. R. Botticelli, D. Altavilla, M. Galantucci, L. Minutoli, A. Bitto, F. Squadrito, and S. Guarini. 2006. Broad therapeutic treatment window of [Nle⁴, D-Phe⁷] α -Melanocyte Stimulating Hormone for long-lasting protection against ischemic stroke, in mongolian gerbils. *European J Pharmacology.* 538:48-56.
- Giuliani, D., A. Ottani, C. Mioni, C. Bazzani, M. Galantucci, L. Minutoli, A. Bitto, D. Zaffe, A. R. Botticelli, F. Squadrito, and S. Guarini. 2007. Neuroprotection in focal cerebral ischemia owing to delayed treatment with melanocortins. *European J Pharmacology.* 570:57-65.
- Giuliani, D., A. Ottani, L. Neri, D. Zaffe, P. Grieco, J. Jochem, G. M. Cavallini, A. Catania, and S. Guarini. 2017. Multiple beneficial effects of melanocortin MC4 receptor agonists in experimental neurodegenerative disorders: therapeutic perspectives. *Progress in Neurobiology.* 148: 40-56.
- Goldstein, L. B., P. Amarenco, J. Zivin, M. Messig, I. Altafullah, A. Callahan, M. Hennerici, M. J. MacLeod, H. Sillesen, R. Zweifler, K. Michael, and A. Welch. 2009. Statin treatment and stroke outcome in the stroke prevention by aggressive reduction in cholesterol levels (SPARCL) trial. *Stroke.* 40(11): 3526-3531.

- Gonzalez, R. G., J. A. Hirsch, M. H. Lev, P. W. Schaefer, and L. H. Schwamm. 2011. *Acute Ischemic Stroke, Imaging and Intervention*. 2nd Ed. Springer Heidelberg Dordrech. New York.
- Guyton, A. C. and E. H. John. 2007. *Textbook of Medical Physiology*. 11th Ed. Terjemahan: Ramadhani, D., F. Indriyani, dan F. Dany. 2008. Buku Ajar Fisiologi Kedokteran. Ed 11. EGC Kedokteran. Jakarta.
- Hackett, M. L. and C. S. Anderson. 2005. Predictors of depression after stroke. *Stroke*. 36(10): 2296-2301.
- Hagberg, H., E. A. David, and G. Floris. 2016. Perinatal brain damage: the term infant. *Neurobiology of Disease*. 92: 102-112.
- Hoke, A. 2006. Erythropoietin and the nervous system novel therapeutic options for neuroprotection. *Springer*. 100-101.
- Horn, J., R. J. De Haan, M. Vermeulen, and M. Limburg. 2001. Very early nimodipine use in stroke (VENUS): A randomized, double-blind, placebo-controlled trial. *Stroke*. 32(2): 461-465.
- Hralova, M., E. Plananska, Y. Angerova, A. Jadwischczokova, J. Bortelova, M. Lippertova-Grunerova, and D. Maresova. 2014. Effect of a single dose of erythropoietin on motor function and cognition after focal brain ischemia in adult rats. *Prague Medical Report*. 115(1-2): 5-15.
- Jelkmann, W. 2013. Physiology and pharmacology of erythropoietin. *Transfusion Med Hemotherapy*. 40: 302-309.
- Jin, R., G. Yang, and G. Li. 2010. Inflammatory mechanisms in ischemic stroke: role of inflammatory cells. *J Leucocyte Biol*. 87(5): 779-789.
- Kanyal, N. 2015. The science of ischemic stroke: pathophysiology and pharmacological treatment. *Int J Pharm Res Rev*. 4(10): 65-84.
- Kementerian Kesehatan Republik Indonesia. 2011. 8 dari 1000 Orang di Indonesia Terkena Stroke. Available from: <http://depkes.go.id> [Accessed 29 Maret 2019]
- Kementerian Kesehatan Republik Indonesia. 2013. Situasi Kesehatan Jantung, Data Riset Kesehatan Dasar 2013. Available from: <http://depkes.go.id> [Accessed 30 Maret 2019]
- Khandelwal P, D. R. Yavagal, and R. L. Sacco. 2016. Acute ischemic stroke intervention. *J Am Coll Cardiol*. 67(22): 2631-2644.
- Khedr, E. M., G. Fawi, M. Abdela, T. A. Mohammed, M. A. Ahmed, and N. A. El-Fetoh. 2014. Prevalence of ischemic and hemorrhagic strokes in Qena governorate, Egypt: community-based study. *J Stroke Cerebrovasc Disease*. 23: 1843-1848.

- Lapin, T. 2003. The cellular biology of erythropoietin receptors. *The Oncologist*. 8(1): 15-18.
- Lasaga, M., L. Debeljuk, D. Durand, T. N. Scimonelli, and C. Caruso. 2008. Role of α -melanocyte stimulating hormone and melanocortin 4 receptor in brain inflammation. *Peptide*. 29: 1825-1835.
- Lawrence, C. B. and N. J. Rothwell. 2001. Anorexic but not pyrogenic actions of interleukin-1 are modulated by central melanocortin-3/4 receptors in the rat. *J Neuroendocrinology*. 13(6): 490-495.
- Li, L., Q. Yu, and W. Liang. 2017. Use of 2,3,5-triphenyltetrazolium chloride-stained brain tissues for immunofluorescence analyses after focal cerebral ischemia in rats. *Pathology - Research & Practice*. <https://doi.org/10.1016/j.prp.2017.11.016>.
- Lina, R. N., M. Rahmadi, and J. Khotib. 2018. Erythropoietin restores motor functions through angiogenesis in the thalamus area of ischemic stroke in rats. *Fol Med Indones*. 54(3): 189-194.
- Lutsep, H. L. 2015. Neuroprotective Agents In Stroke Overview Of Neuroprotective Agents. Available from: <https://emedicine.medscape.com/article/1161422-overview#a1> [Accessed 30 Juni 2020]
- Magnoni, S., N. Stocchetti, G. Colombo, A. Carlin, A. Colombo, J. M. Lipton, and A. Catania. 2003. α -Melanocyte stimulating hormone is decreased in plasma of patients with acute brain injury. *J Neurotrauma*. 20(3): 251-260.
- Maiese, K., Z. Z. Chong, J. Hou, and Y. C. Shang. 2008. Erythropoietin and oxidative stress. *Current Neurovascular Res*. 5(2): 125-142.
- Markam, S. 2003. *Pengantar Neuropsikologi*. Balai Penerbit Fakultas Kedokteran - UI. Jakarta. p23-92.
- Mentari, I. A., R. Naufalina, M. Rahmadi, and J. Khotib. 2018. Development of ischemic stroke model by right unilateral common carotid artery occlusion (RUCCAO) method. *Fol Med Indonesia*. 54(3): 200-206.
- Miller, R., W. Aaron, T. Toneff, D. Vishnuvardhan, M. C. Beinfeld, and V. Y. H. Hook. 2003. Obliteration of α -melanocyte stimulating hormone derived from POMC in pituitary and brains of PC2-deficient mice. *J Neurochemistry*. 86: 556-563.
- Nguyen, A. Q., B. H. Cherry, G. F. Scott, M. Ryou, and R. T. Mallet. 2014. Erythropoietin: powerful protection of ischemic and post-ischemic brain. *Exp Biol Med*. 2: 2-5.

- O'Donnell, M. J., D. Xavier, L. Liu, H. Zhang, S. L. Chin, P. Rao-Melacini, S. Rangarajan, S. Islam, P. Pais, M. J. McQueen, C. Mondo, A. Damasceno, P. Lopez-Jaramillo, G. J. Hankey, A. L. Dans, and K. Yusuf. 2010. Risk factors for ischaemic and intracerebral haemorrhagic stroke in 22 countries (The INTERSTROKE Study): A case-control study. *Lancet*. 376(9735): 112-123.
- Oomen, C. A., E. Farkas, V. Roman, E. M. Van Der Beek, P. G. M. Luiten, and P. Meerlo. 2009. Resveratrol preserves cerebrovascular density and cognitive function in aging mice. *Front Aging Neurosci*. 1(4): 1-9.
- Ovbiagele, B. and M. N. Nguyen-Huynh. 2011. Stroke epidemiology: Advancing our understanding of disease mechanism and therapy. *Neurotherapeutics*. 8: 319-329.
- Paschos, N., M. G. Lykissas, and A. E. Beris. 2008. The role of erythropoietin as an inhibitor of tissue ischemia. *Int J Biol Sci*. 4(3): 161-168.
- Perhimpunan Dokter Spesialis Saraf Indonesia. 2011. *Guideline Tata Laksana Stroke*. PERDOSSI. Jakarta. p76-78.
- Ponce, L. L., J. C. Navarro, O. Ahmed, and C. S. Robertson. 2013. Erythropoietin neuroprotection with traumatic brain injury. *Pathophysiology*. 20(1): 31-38.
- Price, S. A. and L. M. Wilson. 2006. *Patofisiologi Konsep Klinis Proses-Proses Penyakit*. Buku Kedokteran EGC. Jakarta. p1113-1116.
- Pun, P. B., J. Lu, and S. Moochhala. 2009. Involvement of ROS in BBB dysfunction. *Free Radical Res*. 43: 348-364.
- Rabie, T. and H. H. Marti. 2008. Brain protection by erythropoietin: A manifold task. *Physiology*. 23: 263-274.
- Rinne, P., L. Lyytikainen, E. Raitoharju, J. J. Kadiri, I. Kholova, M. Kahonen, T. Lehtimäki, and N. Oksala. 2018. Pro-opiomelanocortin and its processing enzymes associate with plaque stability in human atherosclerosis – tampere vascular study. *Nature Scientific Reports*. 8(15078): 1-13.
- Roger, V. L., A. S. Go, D. M. Lloyd-Jones, R. J. Adams, J. D. Berry, T. M. Brown, M. R. Carnethon, S. Dai, G. De Simone, E. S. Ford, C. S. Fox, H. J. Fullerton, C. Gillespie, K. J. Greenlund, S. M. Hailpern, J. A. Heit, P. Michael Ho, V. J. Howard, B. M. Kissela, and S. J. Kittner. 2011. Heart disease and stroke statistics-2011 update: A report from the american heart association. *Circulation*. 123(4): e18-e209.
- Rundek, T., H. Gardener, Q. Xu, R. B. Goldberg, C. B. Wright, B. Boden-Albaba, N. Disla, M. C. Paik, M. S. V. Elkind, dan R. L. Sacco. 2010. Insulin resistance and risk of ischemic stroke among nondiabetic individuals from the northern manhattan study. *Arch Neurologi*. 67(10): 1195-1200.

- Saver, J. L. and S. Starkman. 2011. *Magnesium in the central nervous system - Magnesium in the clinical stroke*. University of Adelaide Press. Available from: https://www.ncbi.nlm.nih.gov/books/NBK507264/pdf/Bookshelf_NBK507264.pdf [Accessed 30 Juni 2020]
- Savos, A. V., J. M. Gee, D. Zierath, and K. J. Becker. 2011. α -MSH : A potential neuroprotective and immunomodulatory agent for the treatment of stroke. *J Cerebral Blood Flow & Metabolism*. 31: 606-613.
- Sharawy, N., L. Rashed, and M. F. Youakim. 2015. Evaluation of multi-neuroprotective effect of erythropoietin using cisplatin induced peripheral neurotoxicity model. *Exp Toxic Pathology*. 67(4): 315-322.
- Sidiarto, L. D. dan S. Kusumoputro. 2003. *Memori Anda Setelah Usia 50 Tahun*. Penerbit Universitas Indonesia. Jakarta.
- Silbernagl, S. and F. Lang. 2000. *Color Atlas Pathophysiology*. 3th Ed. Heart and Circulation. New York. p236-239.
- Sreedhar, R. and S. V. Gadhinglajkar. 2003. Pharmacologic neuroprotection. *Indian J Anaesth*. 47(1): 8-22.
- Suryati, T. 2013. *Beban Penyakit Stroke di Indonesia DALYs Lost dengan Analisis Kontrafaktual Faktor Risiko Utama [Disertasi]*. Fakultas Kedokteran. Universitas Indonesia. Jakarta.
- Teng, R., O. Gavrilova, N. Suzuki, T. Chanturiya, D. Schimel, L. Hugendubler, S. Mammen, D. R. Yver, S. W. Cushman, E. Mueller, M. Yamamoto, L. L. Hsu, and C. T. Noguchi. 2011. Disrupted erythropoietin signalling promotes obesity and alters hypothalamus pro-opiomelanocortin production. *Nature Communication*. 2: 1-12.
- Traystman, R. J. 2003. Animal models of focal and global cerebral ischemia. *ILAR Journal*. 44(2): 85-95.
- Verma, D. K., S. Gupta, J. Biswas, N. Joshi, A. Singh, P. Gupta, S. Tiwari, S. Raju K, S. Chaturvedi, M. Wahajuddin, and S. Singh. 2018. New therapeutic activity of metabolic enhancer piracetam in treatment of neurodegenerative disease: Participation of caspase independent death factors, oxidative stress, inflammatory responses and apoptosis. *Biochimica et Biophysica Acta (BBA)-Molecular Basis of Disease*. 1864(6): 2078-2096.
- Vikman, P., S. Ansar, M. Henriksson, E. Stenman, and L. Edvinsson. 2007. Cerebral ischemia induces transcription of inflammatory and extracellular matrix related genes in rat cerebral arteries. *Exp Brain Res*. 183(4): 499-510.
- Warach S., L. C. Pettigrew, J. F. Dashe, P. Pullicino, D. M. Lefkowitz, L. Sabounjian, K. Harnett, U. Schwiderski, and R. Gammans. 2000. Effect of citicoline on ischemic lesions as measured by diffusion-weighted magnetic

- resonance imaging. Citicoline 010 investigators. *Ann Neurol.* 48(5): 713-722.
- Waxman, S. G. 2007. *The Limbic System, In Clinical Neuroanatomy.* MacGraw-Hill Companies. New York USA. p229-239.
- Whiteley, W. N., J. Emberson, K. R. Lees, L. Blackwell, G. Albers, E. Bluhmki, T. Brott, G. Cohen, S. Davis, G. Donnan, *et al.* 2016. Risk of intracerebral haemorrhage with alteplase after acute ischaemic stroke: A secondary analysis of an individual patient data meta-analysis. *Lancet Neurol.* 15(9): 925–933.
- Woodruff, T. M., J. Thundyl, S. Tang, C. G. Sobey, S. M. Taylor, and T. V. Arumugam. 2011. Pathophysiology, treatment, and animal and cellular models of human ischemic stroke. *Molecular Neurodegeneration.* 1: 1-3.
- World Health Organization. 2006. STEP Stroke Surveillance. Available from: http://www.who.int/entity/chp/steps/section/1_introduction.pdf [Accessed 20 Maret 2019]
- Yan, T., M. Chopp, and J. Chen. 2015. Experimental animal models and inflammatory cellular changes in cerebral ischemic and hemorrhage stroke. *Neurosci Bull.* 31(6): 717-734.
- Yayasan Stroke Indonesia. 2011. Sekilas Tentang Stroke. Available from: <http://www.yastroki.or.id/read.php?id=361> [Accessed 8 Maret 2019]
- Yoshizaki, K., K. Adachi, S. Kataoka, A. Watanabe, T. Tabira, K. Takahashi, and H. Wakita. 2007. Chronic cerebral hypoperfusion induced by right unilateral common carotid artery occlusion causes delayed white matter lesions and cognitive impairment in adult mice. *Exp Neurology.* 210: 585-591.
- Young, A. R., C. Ali, A. Duretete, and D. Vivien. 2007. Neuroprotection and stroke: time for a compromise. *J Neurochem.* 103: 1302–1309.
- Zainuddin, M. 2011. *Metodologi Penelitian Kefarmasian dan Kesehatan.* Surabaya. p71.
- Zierath, D., P. Tanzi, K. Cain, D. Shibata, and K. Becker. 2011. Plasma α -melanocyte stimulating hormone predicts outcome in ischemic stroke. *Stroke.* 42: 3415-3420.

LAMPIRAN

Lampiran 1. Sertifikat Uji Etik



**KOMISI ETIK PENELITIAN
FAKULTAS KEDOKTERAN HEWAN UNIVERSITAS AIRLANGGA
*Animal Care and Use Committee (ACUC)***

**KETERANGAN KELAIKAN ETIK
“ ETHICAL CLEARANCE ”**

No : 2.KE.192.11.2019

**KOMISI ETIK PENELITIAN (ANIMAL CARE AND USE COMMITTEE)
FAKULTAS KEDOKTERAN HEWAN UNIVERSITAS AIRLANGGA SURABAYA,
TELAH MEMPELAJARI SECARA SEKSAMA RANCANGAN PENELITIAN YANG
DIUSULKAN, MAKA DENGAN INI MENYATAKAN BAHWA :**

PENELITIAN BERJUDUL : Pengaruh Pemberian Eritropoietin Terhadap
α-Melanocyte Stimulating Hormone pada Mencit
Stroke Iskemik

PENELITI UTAMA : Junaidi Khotib

**UNIT/LEMBAGA/TEMPAT
PENELITIAN** : Program Studi Magister Ilmu Farmasi
Fakultas Farmasi Universitas Airlangga

DINYATAKAN : LAIK ETIK

Surabaya, 14 Oktober 2019

Ketua, 


Mengetahui,
Dekan, FKH Upair,
Prof. Dr. Puji Srianto, M.Kes.,Drh.
NIP. 195601051986011001

Dr. Nurdianto Triakoso, M.P.,Drh.
NIP. 196805051997021001

Lampiran 2. Certificate of Analysis Mouse α -MSH ELISA Kit**Certificate of Analysis****Mouse α MSH (Alpha-Melanocyte Stimulating Hormone)
ELISA Kit**

Catalog No.: MBS762636

Lot No.: M1454E120

Size: 48T/96T

Reactivity: Mouse

Range: 15.625-1000pg/ml

Sensitivity: 9.375pg/ml

Application: For quantitative detection of α MSH in serum, plasma, tissue homogenates and other biological fluids.**Storage:** 4°C for 6 months**Principle:** Sandwich**NOTE: FOR RESEARCH USE ONLY.****Kit Components**

Item	Specifications(48T/96T)	Storage
ELISA Microplate(Dismountable)	8x6/8x12	4°C/-20°C
Lyophilized Standard	1 vial/2 vial	4°C/-20°C
Sample/Standard Dilution Buffer	10ml/20ml	4°C
Biotin-labeled Antibody(Concentrated)	60ul/120ul	4°C(protect from light)
Antibody Dilution Buffer	5ml/10ml	4°C
HRP-Streptavidin Conjugate(SABC)	60ul/120ul	4°C(protect from light)
SABC Dilution Buffer	5ml/10ml	4°C
TMB Substrate	5ml/10ml	4°C(protect from light)
Stop Solution	5ml/10ml	4°C
Wash Buffer(25X)	15ml/30ml	4°C
Plate Sealer	3/5pieces	
Product Description	1 copy	

1 / 7

FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.

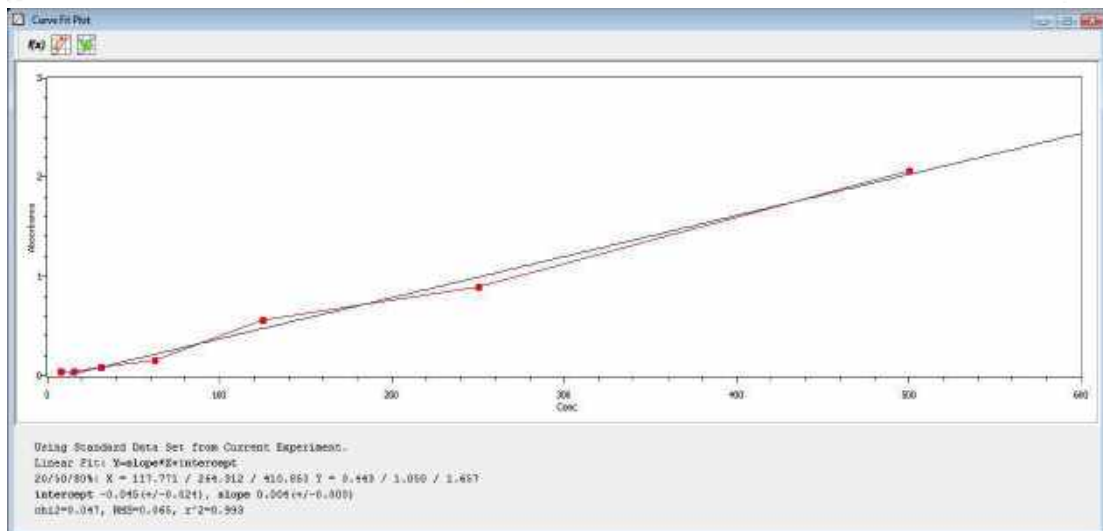
Lampiran 3. Kurva Standar α -MSH

Ulya MSH Result.mpl 02/18/2020 09:33 AM
 Title
 Protocol
 Date/Time 02/03/2020 14:40:47
 Technician
 Plate ID
 Unit
 Reader Setup Endpoint Single 450.0nm Mix off Temp *.*
 Reader Model # iMark
 Reader Serial # 17539
 Reader Version # 1.04.02.E Build 00
 Comments

Using Standard Data Set from Current Experiment.
 Linear Fit: $Y = \text{slope} * X + \text{intercept}$
 20/50/80%: $X = 117.771 / 264.312 / 410.853$ $Y = 0.443 / 1.050 / 1.857$
 intercept: $-0.045 (+/-0.024)$, slope: $0.004 (+/-0.000)$
 $\text{chi}^2=0.047$, $\text{RMS}=0.065$, $r^2=0.993$

Standards Report:

Std #	Conc	Well	Replicates	Mean	SD	%CV
1	7.8125	G7	0.038	0.038	(*)	(*)
2	15.625	F6 F7	0.038 0.041	0.040	0.002	5.303
3	31.25	E6 E7	0.094 0.072	0.083	0.016	18.630
4	62.5	D6 D7	0.136 0.184	0.150	0.020	13.155
5	125	C6 C7	0.606 0.505	0.555	0.071	12.868
6	250	B6 B7	0.864 0.922	0.893	0.040	4.513
7	500	A6 A7	2.176 1.946	2.061	0.163	7.889



Lampiran 4. Nilai OD Minus Blank dari Standar dan Sampel α -MSH

Raw Data{Wavelength:450.0}

	1	2	3	4	5	6	7	8	9	10	11
A	0,053	0,010	0,010	0,006	0,023	2,176	1,946	(+)	0,012	0,020	0,037
B	0,039	0,011	0,009	0,013	0,021	0,864	0,922	0,048	0,017	0,030	0,023
C	0,028	0,008	0,006	0,017	0,023	0,606	0,505	0,030	0,010	0,028	0,022
D	0,048	0,007	0,007	0,004	0,016	0,136	0,164	0,048	0,016	0,024	(+)
E	0,010	0,011	0,040	0,018	0,021	0,094	0,072	0,039	0,023	0,022	
F	0,009	0,009	0,037	0,016	0,020	0,041	0,038	0,037	0,022	0,023	
G	0,010	0,008	0,033	0,017	0,013		0,038	0,053	0,016	0,030	
H	0,006	0,010	0,039	0,008	0,023	0,058	0,049	0,021	0,023	0,028	

	1	2	3	4	5	6	7	8	9	10	11
A	K04+01	E1-04+01	E3-04+01	S04+03	E2-05+03	500	500	1000	S02+07	E1-08+07	E3-05+07
B	K05+01	E1-05+01	E3-05+01	S05+03	E2-06+03	250	250	K02+07	S03+07	E2-01+07	E3-07+07
C	K06+01	E1-06+01	E3-06+01	S06+03	E2-07+03	125	125	K03+07	S05+07	E2-02+07	E3-08+07
D	K07+01	E1-07+01	E3-07+01	S07+03	E2-08+03	62,5	62,5	K04+07	S07+07	E2-05+07	1000
E	S04+01	E2-04+01	K04+03	E1-05+03	E3-04+03	31,25	31,25	K05+07	E1-02+07	E2-07+07	
F	S05+01	E2-05+01	K05+03	E1-06+03	E3-05+03	15,625	15,625	K06+07	E1-03+07	E2-08+07	
G	S06+01	E2-06+01	K06+03	E1-07+03	E3-07+03		7,8125	K07+07	E1-05+07	E3-01+07	
H	S07+01	E2-07+01	K07+03	E1-08+03	E3-08+03	#	#	S01+07	E1-06+07	E3-02+07	

Lampiran 5. Hasil Pengukuran Konsentrasi α -MSH dalam Sampel Plasma➤ Konsentrasi α -MSH Hari ke-1 Setelah Induksi Stroke

Hari	Kelompok	Replikasi	OD	Konsentrasi	Rerata	SEM
1	Kontrol	4	0,053	23,699	21,190	1,204
		5	0,039	20,319		
		6	0,028	18,250		
		7	0,048	22,492		
	Stroke	4	0,010	13,317	13,015	0,229
		5	0,009	13,075		
		6	0,010	13,317		
		7	0,006	12,351		
	EPO 2000	4	0,010	13,317	13,075	0,220
		5	0,011	13,558		
		6	0,008	12,834		
		7	0,007	12,592		
	EPO 5000	4	0,011	13,558	13,196	0,156
		5	0,009	13,075		
		6	0,008	12,834		
		7	0,010	13,317		
EPO 10000	4	0,010	13,317	12,834	0,220	
	5	0,009	13,075			
	6	0,006	12,351			
	7	0,007	12,592			

➤ Konsentrasi α -MSH Hari ke-3 Setelah Induksi Stroke

Hari	Kelompok	Replikasi	OD	Konsentrasi	Rerata	SEM
3	Kontrol	4	0,040	21,250	20,226	0,380
		5	0,037	19,836		
		6	0,033	19,500		
		7	0,039	20,319		
	Stroke	4	0,006	12,351	13,317	0,731
		5	0,013	14,041		
		6	0,017	15,007		
		7	0,004	11,868		
	EPO 2000	5	0,018	15,248	14,403	0,544
		6	0,016	14,524		
		7	0,017	15,007		
		8	0,008	12,834		
	EPO 5000	5	0,023	16,445	15,847	0,455
		6	0,021	15,973		
		7	0,023	16,445		
		8	0,016	14,524		
EPO 10000	4	0,021	15,973	15,550	0,525	
	5	0,020	15,731			
	7	0,013	14,041			
	8	0,023	16,455			

➤ Konsentrasi α -MSH Hari ke-7 Setelah Induksi Stroke

Hari	Kelompok	Replikasi	OD	Konsentrasi	Rerata	SEM
7	Kontrol	2	0,048	22,492	21,265	0,779
		3	0,030	18,750		
		4	0,048	22,492		
		5	0,039	20,319		
		6	0,037	19,836		
		7	0,053	23,699		
	Stroke	1	0,021	15,973	14,524	0,465
		2	0,012	13,799		
		3	0,017	15,007		
		5	0,010	13,317		
		7	0,016	14,524		
	EPO 2000	2	0,023	16,455	15,983	0,402
		3	0,022	16,750		
		5	0,016	14,524		
		6	0,023	16,455		
		8	0,020	15,731		
	EPO 5000	1	0,030	18,750	17,491	0,438
		2	0,028	18,250		
		5	0,024	17,250		
		7	0,022	16,750		
8		0,023	16,455			
EPO 10000	1	0,030	18,750	18,008	0,630	
	2	0,028	18,250			
	5	0,037	19,836			
	7	0,023	16,455			
	8	0,022	16,750			

Lampiran 6. Hasil Uji *Y-maze plus cues*

Kelompok	Replikasi	Hari			
		H-1	H+1	H+3	H+7
Kontrol (Sham)	1	60	100	80	-
	2	60	60	60	60
	3	100	80	80	100
	4	80	80	100	80
	5	80	80	60	80
	6	80	80	60	80
	7	100	80	80	60
	average	80,00	80,00	74,29	76,67
	sem	6,172	4,364	5,714	6,146
Kelompok	Replikasi	Hari			
		H-1	H+1	H+3	H+7
Stroke	1	80	40	40	20
	2	80	0	40	40
	3	60	40	40	40
	4	60	40	40	-
	5	80	40	60	40
	6	60	40	40	-
	7	60	20	20	60
	average	68,57	31,43	40,00	40,00
	sem	4,041	5,948	4,364	6,325
Kelompok	Replikasi	Hari			
		H-1	H+1	H+3	H+7
EPO 2000	1	60	40	-	
	2	80	40	60	80
	3	80	60	60	80
	4	60	60	-	
	5	60	40	60	80
	6	60	60	60	60
	7	80	60	60	-
	8	60	40	60	60
	average	67,50	50,00	60,00	72,00
	sem	3,660	3,780	0,000	4,899

Kelompok	Replikasi	Hari			
		H-1	H+1	H+3	H+7
EPO 5000	1	80	60	60	60
	2	60	40	60	80
	3	80	60	-	
	4	60	60	-	
	5	100	60	80	80
	6	60	40	60	-
	7	60	60	80	80
	8	80	60	60	80
	average	72,50	55,00	66,67	76,00
	sem	5,261	3,273	4,216	4,000
Kelompok	Replikasi	Hari			
		H-1	H+1	H+3	H+7
EPO 10000	1	80	60	60	60
	2	80	80	80	80
	3	80	60	-	
	4	60	60	80	-
	5	60	60	60	100
	6	60	60	-	
	7	80	60	80	80
	8	100	80	60	80
	average	75,00	65,00	70,00	80,00
	sem	5,000	3,273	4,472	6,325

Lampiran 7. Hasil Pengukuran Luas Area Infark dengan Software *ImageJ*

Kelompok	Replikasi	Luas Area Infark	Rerata	SEM
Kontrol	1	0	0	0
	2	0		
	3	0		
Stroke	1	23,30	21,40	0,97
	2	20,10		
	3	20,80		
EPO 2000	1	10,14	9,39	0,47
	2	9,50		
	3	8,54		
EPO 5000	1	5,84	4,69	0,56
	2	4,13		
	3	4,09		
EPO 10000	1	1,62	1,11	0,29
	2	0,92		
	3	0,79		