# Analisis Inhibisi *Secretory Leukocyte Protease Inhibitor* (SLPI) rekombinan Asal Membran Amnion Manusia Terhadap Aktivitas Enzim *Porcine Pancreatic Elastase* (PPE)

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**Shindy Purnamasari., 2011, Inhibitory analysis of recombinant *Secretory leukocyte protease inhibitor* (SLPI) from human amniotic membrane on *Porcine Pancreatic ELastase* (PPE) activity, Thesis is under guidance of Prof.Dr. Ni Nyoman Tri Puspaningsih, M.Si. and Dr. Elly Munadziroh, M.Si, drg. Department of Chemistry, Faculty of Science and Technology, Airlangga University, Surabaya.**

**Abstract**

Secretory leukocyte protease inhibitor (SLPI) is The 11.7kDa non-glycosylated protein is highly basic (pI>9:5), stable in acidic conditions, and found in a variety of mucosal fluids, including saliva, respiratory secretions, and cervicovaginal fluids SLPI is a potent anti-microbial, anti-inflammatory protein that have wound healing activities. Previous study have expressed human SLPI as a polyhistidine-tagged protein (HisSLPI) using a recombinant *E.coli* expression system. The 11,7 kDa-tagged protein was then overexpressed in *E.coli* cells following a 4 hour induction of IPTG. The recombinant SLPI were purified to homogeneity from concentrated culture medium by one-step nickel-chelating affinity chromatography under non-denaturing conditions using FPLC, and analyzed by Coomassie-stained SDS–polyacrylamide gel electrophoresis (SDS–PAGE). Purified recombinant SLPI was further characterized by kinetics studies. The recombinant SLPI was found to be fast-acting inhibitor of porcine pancreatic elastase, with KM values of 0,3359 mM, while $V_{maks}$ 0,0151 μmol/min. The equilibrium dissociation constant Ki for the interaction of recombinant SLPI with its target enzymes was directly measured for *porcine pancreatic elastase* .Ki values were found to be in the 0,959 mM. Based on the kinetic parameters determined here, it may be concluded that recombinant SLPI may act as potent anti-inflammatory molecules and may be of therapeutic potential in the treatment of various inflammatory diseases.

***Keywords**: SLPI, serine protease, IPTG induction, FPLC, enzyme kinetics.*