

ABSTRAK

PROFIL HISTOLOGI DAN MORFOMETRI PANKREAS MENCIT (*Mus Musculus*) GALUR BALB/c JANTAN DAN BETINA DENGAN PEWARNAAN HEMATOKSILIN-EOSIN DAN IMUNOHISTOKIMIA

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Mencit (*Mus musculus*) merupakan hewan pengerat (rodensia) hasil domestikasi. *Mus musculus* sering digunakan dalam penelitian ilmiah terutama dalam penelitian biologi, genetika, toksikologi, patologi, histopatologi, dan bidang lainnya. Penelitian mengenai histologi pankreas mencit BALB/c masih terbatas. Penelitian ini bertujuan untuk mendapatkan data primer struktur mikroskopis dan morfometri dari pankreas *Mus musculus* galur BALB/c dengan pewarnaan hematoksilin eosin (HE) dan imunohistokimia terhadap sel alfa dan beta menggunakan antibodi primer anti-glukagon dan anti-insulin. Sampel pankreas dari dua mencit jantan dan dua mencit betina diambil setelah proses euthanasi dengan overdosis anestesi *ketamine-xylazine*, kemudian organ pankreas difiksasi dalam PBS formalin 10%. Jaringan kemudian diproses dengan metode parafin dan diwarnai dengan hematoksilin eosin dan imunohistokimia. Hasil mengenai sel penyusun jaringan eksokrin dan endokrin, jumlah pulau Langerhans, diameter pulau Langerhans, dan diameter sel asini, serta persebaran sel alfa dan sel beta pulau Langerhans didapatkan dengan menggunakan software Opti-lab dan *image raster* dengan perbesaran lensa objektif 4x, 40x, dan 100x lalu dianalisis secara deskriptif dan kuantitatif dengan uji parametrik uji T atau non parametrik Mann Whitney. Hasil penelitian menunjukkan bahwa struktur histologis pankreas mencit terdiri atas jaringan eksokrin berupa sel asini dan jaringan endokrin berupa pulau Langerhans. Rerata diameter sel asini, diameter pulau Langerhans, jumlah pulau Langerhans pada mencit jantan dan betina tidak berbeda signifikan ($p > 0.05$). Pewarnaan imunohistokimia menunjukkan persebaran sel alfa di perifer pulau Langerhans dan sel beta di sentral pulau Langerhans.

Kata kunci: imunohistokimia, *Mus musculus*, pankreas, pulau Langerhans

ABSTRACT

HISTOLOGY AND MORPHOMETRY PROFILE OF THE PANCREAS OF MALE AND FEMALE MICE (*Mus Musculus*) BALB/c STRAIN WITH HEMATOXYLIN-EOSIN STAINING AND IMMUNOHISTOCHEMISTRY

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Mice (*Mus musculus*) are domesticated rodents. *Mus musculus* is frequently used in scientific research, particularly in biology, genetics, toxicology, pathology, histopathology, and other fields. Studies on the pancreatic histology of BALB/c mice remain limited. This study aims to obtain primary data on the microscopic structure and morphometry of the pancreas in BALB/c strain *Mus musculus* using hematoxylin-eosin (HE) staining and immunohistochemistry for alpha and beta cells with anti-glucagon and anti-insulin primary antibodies. Pancreatic samples from two male and two female mice were collected following euthanasia by ketamine-xylazine overdose, then fixed in 10% PBS-formalin. Tissues were processed by the paraffin method and stained with HE and by immunohistochemistry. Data on exocrine and endocrine tissue components, number of islets of Langerhans, islet diameter, acinar cell diameter, and the distribution of alpha and beta cells within the islets were obtained using Opti-lab and image raster software at 4x, 40x, and 100x objective magnifications and analyzed descriptively and quantitatively using *t*-test or the Mann–Whitney test. The results showed that the histological structure of the mice pancreas consists of exocrine acinar cells and endocrine islets of Langerhans. Mean diameters of acinar cells and islets did not differ significantly between male and female mice ($p > 0.05$). Immunohistochemical staining revealed alpha cells localized at the periphery of the islets of Langerhans and beta cells in the central region.

Keywords: immunohistochemistry, *Mus musculus*, pancreas, islets of Langerhans