

Thesis Title Scanning Electron Microscopic Study of
the Splenic Vascular Casts of Common
Tree Shrew (Tupaia glis)

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ABSTRACT

The splenic vascular casts of the common tree shrew were constructed with Batson's no. 17 compound and view under SEM for the study of detail features of microvasculature, with complementary usage of vinyl casting method for the study of gross arterial system in relation to venous system. Adult common tree shrew of both sexes weighing between 120 g and 180 g were divided into 2 groups to be injected with red and blue vinyl resin, and plastic mixture (Batson's no. 17), respectively. Under ether anaesthesia, 0.05 ml of heparin was injected, the right atrium was cut open, and 250 ml of 0.9% NaCl solution was perfused, both through the left ventricle, following with 50 ml of 10% neutral formalin solution. Then resin or plastic mixture was perfused manually through the left ventricle, until it was flowing

out from the right atrium. After hardening, the vinyl resin and plastic mixture injected specimens were macerated in 40% KOH. After washing in water and drying at room temperature, the vinyl resin corrosion casts were studied under stereomicroscope. The plastic corrosion casts of the spleen were dissected free, coated with carbon and gold before viewing under SEM at 15 kV. It was found that the spleen of common tree shrew was supplied by splenic artery which divided into trabecular arteries. The trabecular arteries divided again into central arterioles. Each central arteriole sent out 15 to 30 radiating arterioles; called penicillar arteriole. After numerous divisions and became smaller, they entered marginal zone and red pulp. Here each arteriole continued directly into sinusoids. The size of the sinusoid was 10.5 μm . (7.0 to 14.0 μm) which was larger than ordinary capillaries in the same animal; that is 4.2 μm (3.3 to 5.0 μm). The sinusoids emptied into pulp venules and passed into trabecular veins. The trabecular veins traveled to the hilum, where they drained into splenic veins and finally drained into portal vein. It is most likely that the splenic circulation of the common tree shrew is the closed circulation type.