

Exercise 1 for 3313

This exercise is designed for you to explore the School and different views of histology, imaging and immunolabelling. Look at the digital images of histological slides around the walls of the School. Most are numbered. Many are from an exhibition held in 1998 see in colour with further information on WWW sit <http://www.iaaf.uwa.edu.au/art-in-science/>.

Exercise A

#15 (First floor in the corridor outside room 1.42, CELLCentral Imaging: past the tea-room). This is a picture of the SURFACE. [Images for Exercise D and F2 are also here] **(A1)** If a vertical (transverse) SECTION had been cut through this tissue instead, draw what you think you would actually see of the dendritic cells especially their long extensions on such a thin TRANSVERSE section (dendritic cells are immune cells, similar to macrophages).

(A2) Also draw a dendritic cell if it was not squashed in between cells in a living tissue Look at print #31 (ground floor opposite G02, en route to the museum) for a related view of a macrophage (on the surface of a tissue)... is now a large blue and green image On this theme, look at the research poster on macrophages by Paul McMEnamin and his group in the corridor almost opposite the main office on the first floor (leads to office of Luis Filgueira). While in this corridor peek into room 161 and the world of Hans Arkeveld, the famous sculptor who has an association with the School for over 30 years (he has many works around the School, in the memorial courtyard outside and also near the Lawrence Wilson Gallery)

Exercise B

Hans has a wonderful sense of humour. On the ground floor near the cabinets containing microscopes, observe (by Hans), the wooden microscope with cross sections of angels wings! Enjoy this and more

Exercise C

#6 (ground floor – large black picture with green cell). Many other cells are present in this tissue. **(C)** Why are they not visible?

Exercise D

#19 (first floor near #15 in Exercise A). **(D)** Quickly draw a simple longitudinal section through some of the yellow and green cells. Draw this at a similar magnification to the original immunostained transverse section (just an exercise to compare transverse and longitudinal view).

Exercise E

#14 (ground floor room G02 – David Sinclair lab- south wall). **(E)** Determine from textbooks the probable name of the routine 3 colour connective tissue stain used to produce this picture.

Exercise F

#17 (first floor, cells in blood vessel wall). **(F1)** Compare the cellular organization here with EM picture #32 (ground floor, near stairs outside G39). What is the most striking aspect that #17 and #32 have in common. **(F2)** Compare these with #33 (b/w EM first floor near #15 in Exercise A). WHY does #33 have this organization?

Exercise G

#16 (top floor in corridor outside my office – so you know where I am). The muscle cells have been stained with an antibody to desmin, and the bound antibody is

detected by the brown colour. **(G1)** What does the staining in these precursor cells tell you about desmin? There is another smaller picture (not numbered) on the LHS as you leave the corridor. The single cell (muscle fibre) in this smaller picture has also been stained for desmin: Note the brown (desmin+) muscle precursor cell lying on the surface of the myofibre. **(G2)** What do you think the striped brown lines represent in this mature skeletal muscle cell? (Clue from Fig 3 poster nearby *Strength at the matrix/muscle interface*).