***IN VITRO* POLLEN GERMINATION & TUBE ELONGATION:**

Dust pollen from different flowers onto solidified pollen growth medium (PGM; see below). Under the stereoscope, gently touch anthers down to the agar surface, without making deep divots; pollen will come off into the surface moisture.

- Put the lid on the dish, and leave it on the benchtop.
- Return ~24 hours later to see that some of the pollen will have germinated. Elongated pollen tubes will be visible by stereomicroscope on the surface of the PGM.
- You may also scoop pollen grains and tubes out of the agar, and place them on glass slides, cover with a coverslip (as described above), and stain with Congo Red, for viewing on the fluorescent scope.
- Capture images or make drawings for your notebook, with written notes about the common name of the flower from which the pollen came, the hours since you dusted the pollen on the PGM, and characteristics of the germination--was it through an aperture in the pollen wall? Is the pollen tube projecting into the agar, or upward into the air? Is the tube branched? Is the tube straight or wavy?

Solidified PGM
(from Dr. Zhengbio Yang's laboratory, University of California, Riverside)

18% Sucrose	1mM $CaCl_2$	1mM $MgSo_4$
0.01% Boric acid	1mM Ca $(NO_3)_2$	0.5% Noble agar (Difco)

From Anna Edlund, Lafayette College, Pennsylvania.