P016 Characterization of p26 sPPase activity in the presence of different pH and divalent cations

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Self-incompatibility (SI) is an important mechanism used in many species to prevent inbreeding and thus encouraging out crossing. Upon a self-challenge in *Papaver rhoeas,* a Ca^{2+} dependent signalling cascade is initiated resulting in the destruction of the self-pollen. During self-incompatibility in *Papaver rhoeas*, there is a dramatic drop in cytosolic pH in SI-induced pollen. Another important feature in the SI is the specific phosphorylation of protein Pr-p26 (sPPases, p261a and p261b). In *Papaver* pollen the sPPases play an important role, as they provide the driving force for the biosynthesis of pollen tube germination. These enzymes are Mg^{2+}-dependent, Family 1 soluble inorganic pyrophosphatases. $Ca^{2+,}$ conversely, is an effective inhibitor. During SI response the phosphorylation of these sPPases inhibits their activities which contribute to the inhibition of pollen tube growth. It has previously been shown that during SI the pollen cytosolic pH drops rapidly and dramatically. This poster will present preliminary data investigating the effect of pH and varying divalent cations on p26.1 sPPases activity *in vitro* in order to ascertain the effects *in vivo.* Results demonstrated that pH has a dramatic effect on the activity of both p26.1a and p26.1b. The highest activity was found in at pH 7 which was approximately 97% higher than the activity at pH 5. This has important implications, as it suggests that during early SI, cytosolic acidification will affect p26 activity.