

S009 Regulation of early embryo patterning in *Arabidopsis* by extra-embryonic peptides

Jose Gutierrez-Marcos¹, Lilliana Costa²,

Perry Bateman³ and Eleanor Marshall³

¹University of Warwick, Warwick, UK

²University of Oxford, Oxford, UK

³University of Warwick, Coventry, UK

A key question in the reproductive biology of flowering plants is; how do the three components of the seed co-ordinate their growth and development to ensure success to the next generation.

We have developed a molecular screen to identify factors that regulate this process. Our analysis has uncovered a novel group of secreted peptides that are specifically expressed in the central cell and in endosperm cells surrounding the developing embryo. Altering the expression of these peptides in the endosperm affects embryo patterning only; thus we named them Embryo Surrounding Factors (ESFs). We found that maternally derived ESFs are required during early stages of embryo development. Genetic analysis indicates that ESFs act synergistically with SSP2 to regulate suspensor development and early embryo patterning in *Arabidopsis*. Collectively, our analysis has revealed an unexpected role for maternally-derived central cell peptides in regulating of early embryo patterning in plants.