

National Research Priority 2: Promoting and Maintaining Good Health

PLANTING THE SEED FOR NEW CANCER THERAPIES

Dr Joshua Mylne from The University of Queensland's Institute for Molecular Bioscience was awarded the 2012 Peter Goldacre Award by the Australian Society of Plant Scientists in recognition of his unusual finding that the drug-like protein, SFTI, begins life buried in a sunflower seed protein.

SFTI is a small, stable protein ring that can block digestive enzymes called proteases, which digest our meals, but tumours can also use them to eat into surrounding flesh and create space for the tumour to grow.

In its natural form, SFTI will block a well-known breast cancer protease, and in modified forms will block proteases associated with other types of cancer. These proteins have not been broadly adopted by drug designers despite their potential to fight cancer partly because of the expense of producing them using traditional, synthetic methods.

Dr Mylne's discovery of SFTI within sunflower seeds has opened up a potential solution to this problem. "Seeds are an attractive system for the production of pharmaceuticals, as they are cheap to grow and their contents are stable at room temperature, and sterile inside their coat," Dr Mylne said. "There are also established systems in place for their production, harvest, storage and transportation, meaning they could be the ultimate low-cost drug manufacturing system."

Dr Mylne is the recipient of an ARC *Discovery Projects* grant and Queen Elizabeth II Fellowship over the period 2008–2012 and has been awarded a Future Fellowship at The University of Western Australia commencing in 2013.



Dr Joshua Mylne works to extract DNA from a relative of the sunflower. Photo: J. Mylne

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