"Switch" to turn on flowering in plants

Researchers from NUS Department of Biological Sciences and Temasek Life Sciences Laboratory have found what triggers plants to flower, a discovery that can potentially increase crop yields significantly in changing environments. The findings were published in the 17 April issue of leading online journal *PLoS Biology*.

Using the yeast two-hybrid screening method, Assoc Prof Yu Hao and team members - Mr Liu Lu, Dr Liu Chang, Dr Hou Xingliang, Dr Xi Wanyan, Dr Shen Lisha, Dr Tao Zhen and Ms Wang Yue - scanned some three million samples for proteins in plants over a period of five years. They identified a protein called FT-Interacting Protein 1 (FTIP1) which is essential for a plant to produce flower under normal light conditions.

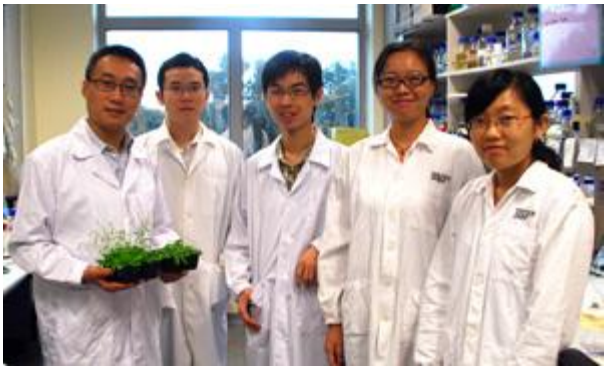
They found that plants with mutant non-functional versions of the FTIP1 gene flowered much later under normal light conditions. When such mutants were given a working version of this gene, their flowering time was largely restored to normal. Thus, the results suggested that FTIP1 had an important role in the control of flowering under light.

"This research shows that we can manipulate flowering time through controlling key regulators like FTIP1," shared Assoc Prof Yu. The findings also shed light on what trigger plants to produce flowers instead of leaves under different environmental conditions.

An implication of the study is that FTIP1 and genes similar to it can be used as molecular markers for both classical plant breeding and targeted genetic modification for desirable flowering traits.

Assoc Prof Yu - whose research areas include functional genomics, plant growth regulation and plant physiology - will work with his team to further investigate other factors critical in controlling flowering and key developmental processes in plants.

While the plant on the left with the working FTIP1 protein can flower normally, the plants in the middle and on the right with the FTIP1 mutants have yet to flower



(From left) Prof Yu, Dr Liu, Mr Liu, Ms Wang and Dr Shen