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The evolution of all living organism is a pivotal process leading to their development and adaptation to changeable environmental conditions. Interestingly, evolutionary processes are not similar in both plants and animals. Polyploidisation is a unique and common process only in plant kingdom, with a few exception to animals. Many of crop plants, important to human food and animal feed have undergone polyploidisation e.g. wheat, banana, potato, oats and soybean.

The aim of the project is to provide a model of molecular mechanisms (e.g. whole genome duplication) that have forced the creation and development of new plants. Moreover, key questions will be addressed: why plant species (their genomes) are so variable? What is the impact of polyploidisation on 'currently' living plants? Does polyploidisation make a chance of success for plant survival in changing environmental conditions?

In presented project the multidisciplinary studies using various research tools of molecular biology and cytogenetics and bioinformatics will be carried out. To track evolutionary changes in plant genome the analysis on the basis on gene sequences (RNA) will be used. The ideal system to study the role of polyploidisation is lupin, that exhibit variation in either genomes or ecogeographic distribution.