Laudatio

Wilhelm Pfeffer Award of the German Botanical Society 2011

Dr. Marco Todesco

During his PhD studies performed at the Max Planck Institute for Developmental Biology in Tübingen, Dr. Marco Todesco made important contributions to our understanding of genetic variation in plants and, in addition, also to the function of plant microRNAs - two areas that are at the forefront of contemporary genetics and molecular biology.

In the major part of his PhD work, Dr. Todesco studied natural alleles that affect vegetative growth in the model plant *Arabidopsis thaliana*. He found that leaf initiation rates and final size vary considerably between different wild strains. Using methods of classical quantitative genetics as well as genome-wide association studies, he identified a gene called ACCELERATED CELL DEATH6 (ACD6) as causing major differences in these two traits between the standard Arabidopsis strain and a specific wild strain. He also noticed that this gene was associated with late-onset necrosis, and that the allele that reduced vegetative growth and caused necrosis is present in about 20% of all wild strains. That this allele is so common suggested that it was involved in a fitness trade-off. Together with his colleagues, Dr. Todesco showed that ACD6 provides broad-spectrum disease resistance, being effective against a diverse range of fungi as well as an oomycete and a bacterium. The work, published in *Nature*, also uncovered that the underlying mechanism lies the elevated production of several potent defense molecules in plants with the growth-restricting allele of ACD6.

In his other PhD projects, Dr. Todesco identified a microRNA gene as a quantitative trait locus responsible for variation in leaf morphology. He also contributed to the development of a new versatile tool for the functional study of microRNAs called artificial target mimics (published in *PLoS Genetics*) and was involved in the spectacular discovery that expansion of a nucleotide triplet repeat causes temperature-dependent growth defects in an Arabidopsis strain (published in *Science*).

For these outstanding accomplishments, Dr. Marco Todesco is highly deserving of the Wilhelm Pfeffer Prize of the German Botanical Society. We expect that he will be a leader in plant biology in the coming years.

Berlin, September 2011,
Prof. Dr. Ralf Bock,
Vorstandsmitglied der Wilhelm-Pfeffer-Stiftung