Proceedings of the 52nd Italian Society of Agricultural Genetics Annual Congress
Padova, Italy – 14/17 September, 2008
ISBN **978-88-900622-8-5**

Poster Abstract – E.17

OLEOSINS AS A CARRIER OF ANTIGENS IN PLANT-DERIVED VACCINES

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oloeosin, molecular farming, plant-derived vaccines

Transgenic plants have potential advantages over conventional expression systems for the production of recombinant antigens for the formulation of subunit vaccines. In particular, seed-targeted expression is attractive as proteins can accumulate stably. However, the purification of recombinant proteins may be difficult due to the complex proteome of this natural storage site.

Oleosins are hydrophobic plant proteins associated with small subcellular organelles extremely abundant in some seeds and termed oil bodies. These organelles can be easily fractionated from other cellular components through a process of flotation-centrifugation. Exploiting oleosins as carriers of foreign proteins represents an efficient mean to enhance accumulation and purification from seeds.

Transgenic *Arabidopsis thaliana* plants expressing sequences derived from Human Immunodeficiency Virus type 1 as fusion with a sunflower oloesin, have been engineered. Plants have been both genetically and biochemically characterized to verify the expression of the fusion protein. Subsequently, oil bodies have been purified from transgenic *Arabidopsis* seeds and their protein constituents have been further analyzed to verify the presence and integrity of the chimeric oleosins.

Work is in progress to verify the immunological properties of antigens produced by this novel approach in an attempt to extend the range of plant-derived vaccines.