



## **Detoxizymes srls**

VAT: 07820751217

Address: Via Nicola Romeo, 28, 80125, Naples, Italy

Operating locations:

- Institute of Protein Biochemistry -CNR-, Via Pietro Castellino 111, 80131, Naples, Italy
- Consorzio Sannio Tech, Strada Statale Appia, 82030, Apollosa (BN), Italy

Website URL: <http://www.detoxizymes.com>

Email: [info@detoxizymes.com](mailto:info@detoxizymes.com)

**founders:** Giuseppe Manco, Luigi Mandrich, Elena Porzio, Ferdinando Febbraio

**CEO:** Dr. Maria Teresa Carusone

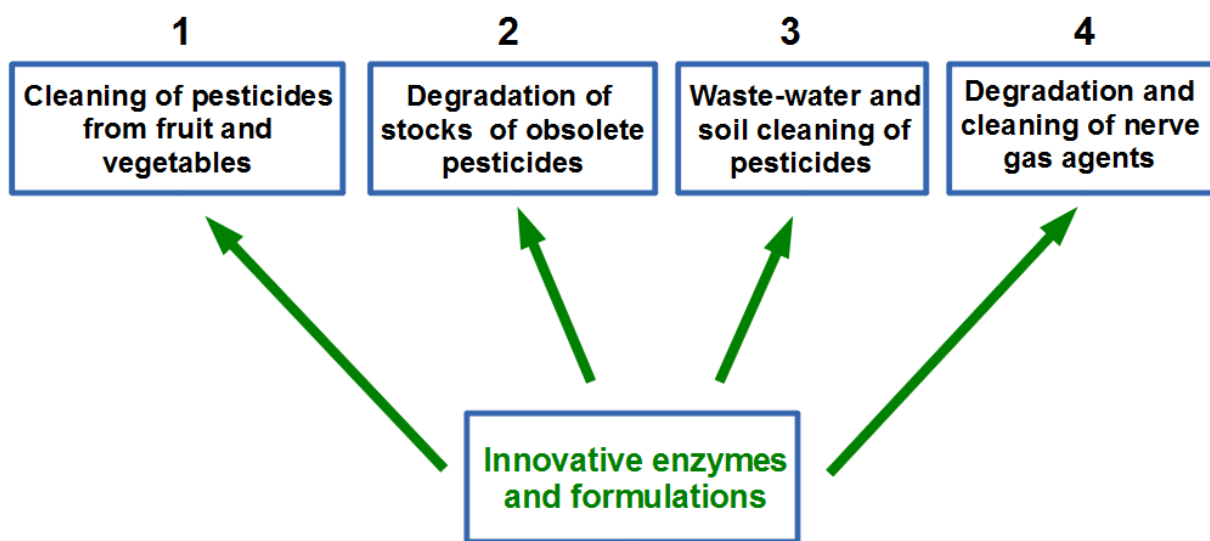
## **FIELD OF ACTIVITIES**

**Category:** BIOTECH

**Subcategory 1:** GREEN CHEMISTRY

**Subcategory 2:** CLEANING

**Company description-Business idea:** The main activity is the development of innovative enzymes with high stability for safety of human health and environment; in particular for: a) cleaning of pesticides residues from fresh foods (fruit and vegetables); b) detoxification of stocks of obsolete pesticides; c) waste-water and soil cleaning of pesticides by enzymatic formulations; d) development of "smart" antimicrobial formulation; e) degradation and cleaning of nerve gas agents.



### **Main milestones of the business idea:**

#### **a) scientific publications:**

- Merone L., Mandrich L., Rossi M., Manco G. "A thermostable phosphotriesterase from the archaeon *Sulfolobus solfataricus*: cloning, overexpression and properties". *Extremophiles*, 2005; **9**: 297-305.
- Porzio E., Merone L., Mandrich L. and Manco G. "A new phosphotriesterase from *Sulfolobus acidocaldarius* and its comparison with the homologue from *Sulfolobus solfataricus*". *Biochimie*, 2007, **89**: 626-636.
- Elias M., Dupuy J., Merone L., Mandrich L., Porzio E., Moniot S., Rochu D., Lecomte C., Rossi M., Masson P., Manco G. and Chabriere E. "Structural basis for natural lactonase and promiscuous phosphotriesterase activities". *J. Mol. Biol.*, 2008 Jun 20; **379** (5):1017-28.
- Del Vecchio P., Elias M., Merone L., Graziano G., Dupuy J., Mandrich L., Carullo P., Fournier B., Rochu D., Rossi M., Masson P., Chabriere E. and Manco G. "Structural determinants of the high thermal stability of SsoPox from the hyperthermophilic archaeon *Sulfolobus solfataricus*". *Extremophiles*, 2009, **13**: 461-470.

- Mandrich L., Merone L., Manco G. "Hyperthermophilic phosphotriesterases/lactonases for environmental and human health". *Environmental Technology*, 2010, **31** (10): 1115-1127. review.
- Merone L., Mandrich L., Porzio E., Rossi M., Müller S., Reiter G., Worek F., Manco G. "Improving the promiscuous nerve agent hydrolase activity of a thermostable archaeal lactonase". *Bioresource Technology*, 2010, **101** (23): 9204-12.
- Mandrich L., Di Gennaro S., Palma A., Manco G. "A further biochemical characterization of DrPLL the thermophilic lactonase from *Deinococcus radiodurans*". *Prot. And Pept. Lett.*, 2012, 2013, **20** (1): 36-44.

b) degradation of stocks of obsolete pesticides:

- FAO estimates that more than 300 tons of obsolete pesticides stored and waiting to be degraded.

c) grants obtained:

- Progetto PON - "Ricerca e Competitività 2007-2013"; code: PON01-01585. Title: "Innovative products for monitoring and decontamination / detoxification of nerve agents and explosives in the environment and / or emergency management".

Project manager: Dr Giuseppe Manco. Lifetime of the project: 36 months. Start date: 01/07/2012. Value: € 3 millions.

- Italian Cystic Fibrosis Foundation. Project FFC #10/2010. Title: "Exploring thermostable quorum quenching lactonases to counteract bacterial infections in cystic fibrosis".

Project manager: Dr Giuseppe Manco. Lifetime of the project: 24 months. Start date: 01/09/2010. Value: € 65,000.

d) patents:

- Italian Patent n. NA2009A000008 (27 February 2009) Mandrich L. and Manco G. "A new group of esterases for fine chemicals and detoxification of organophosphorous nerve agents".

- Italian Patent n. NA2007A000005 (16 January 2007) Mandrich L., Merone L., Porzio E., Rossi M. and Manco G. "Thermophilic and thermostable phosphotriesterases obtained by cloning".

e) awards:

**January 2015**. "Best Presentation Award" at the "Bioinitaly National Roadshow", organized by Technapoli, Assobiotec and Intesa Sanpaolo Bank. As winner Detoxizymes will participate to the selection phase for BioInItaly Investment Forum & Intesa Sanpaolo Start-up Initiative, with the aims to bring together the ideas and innovative biotech nanobiotech with Italian investors throughout the world.

**July 2014**. Selected as innovative start-up by Tech-Hub, an initiative of the Bank of Naples, Chamber of Commerce and University of Naples Federico II, in order to follow the development of new companies with high technological content.

**June 2014**. Selected as innovative start-up, in the section "smart & start" by Invitalia, a National Agency for the development of new business idea.