Press Release – Draft

Green chemistry company Carbios signs a €7 million strategic collaboration with INRA at the Toulouse White Biotechnology research center

A major project based on innovative biological processes for recovering plastic waste and developing competitive production processes for biosourced[1] plastics.

- ➔ *A successful industry-academia collaboration.*
- ➔ *A strategic, structured partnership for Carbios, based on world-class expertise in enzymology.*
- ➔ *Carbios will have exclusive world rights to the industrial exploitation of any patents obtained as part of the collaboration.*

Paris and Clermont-Ferrand (France), April 12 2013 – Carbios, a green chemistry company that specializes in innovative biological and industrial processes for recovering plastic waste and is developing competitive production processes for biosourced plastics and biopolymers, today announced the signature of a pivotal €7-million collaboration with the French National Institute for Agricultural Research (INRA) at the Toulouse White Biotechnology (TWB) research center. The project is part of the THANAPLAST™ private-public consortium on plastics.

The Carbios-INRA project will focus on the development of innovative bioprocesses for recovering plastic waste and producing biopolymers.

Carbios and INRA are both members of the TWB research center [2] and will share know-how, expertise and human & technical resources over a five-year period. The goal is to develop effective biobased industrial processes that (as an alternative to conventional chemistry) add value to plastic waste and enable the production of economically competitive biosourced polymers.

[1] sourced from renewable feedstocks (plant biomass, etc.), rather than petrochemicals.

[2] **Toulouse White Biotechnology** is a world-class technological research center headed by Pierre Monsan and created under the aegis of an INRA/INSA/CNRS consortium. TWB's mission is to help the French economy to effectively and sustainably reduce its dependence on oil by increasing the use of renewable resources. As a center of excellence, TWB focuses on strengthening the ties between basic research and industry. Its operating model is based on public-private partnerships with shared socioeconomic objectives.

The multidisciplinary collaboration will include R&D staff from TWB, the 3BCar Carnot Institute and two INRA groups (from the MICALIS laboratory in Paris and the Biological Systems and Processes Engineering Laboratory from INSA Toulouse, both of which are led by Alain Marty, Emeritus Professor of Enzymology). The INRA groups will focus on enzyme screening, enzymatic catalysis and cell engineering.

This project will enable Carbios to better address environmental, societal and economic issues concerning the recovery of plastic waste. Intensive exploitation of plastics means that over 100 million tons of plastic waste is generated worldwide every year. This alarming environmental issue has prompted a collective awareness of the need to find alternative production and consumption paradigms for a sustainable, environmentally responsible future. Carbios is developing innovative industrial solutions for transforming plastic waste into a novel, high-quality, renewable raw material for the plastics industry. The company offers a viable economic alternative to the depletion of agricultural resources (which might better be used to feed people) and the rarefaction of fossil fuels.

Carbios CEO Jean-Claude Lumaret commented that "*although Europe generates almost 25 million metric tons of plastic waste each year,[3] only 20% of that is recycled. The recovery of such an important renewable resource is a key business issue. We are delighted to have signed this partnership agreement with LISBP and Micalis – two INRA R&D groups that are internationally renowned for their know-how and expertise in enzymatic bioprocesses. By combining our skills and resources, the resulting synergy will be an impressive driver for innovation and the development of breakthrough industrial bioprocesses".*

François Houiller (Chief Executive, INRA) added that*. "This exciting partnership with Carbios at TWB represents one of the highest-value collaborations ever between INRA and a start-up. Carbios has convinced us of their solid technical and industrial expertise. The collaboration will enable us to pool our know-how and will underpin applied research, with the shared objective of exploiting renewable resources".*

Pierre Monsan (founder of the TWB research center) concluded by saying "*we are thrilled to welcome Carbios, a company that meets all our criteria for collaborative projects. TWB is promoting innovative industrial biotechnologies as part of its support for the emergence of a bio-economy based on renewable carbon."*

The €7 million collaboration will be included in the THANAPLAST^{TM} consortium's overall budget of €22 million over five years. This consortium will bring together 60 researchers and will also receive €9.6 million in financial support from the French state innovation agency OSEO as part of the latter's Strategic Industrial Innovation program. CARBIOS (as the project's initiator and leader) will contribute most of the budget (€15 million) and will receive €6.8 million of the €9.6 million provided by OSEO.

THANAPLAST™ is seeking to create industrial value from plastics that have come to the end of their useful lives. The consortium will leverage biological catalysts with exceptional properties (e.g. resistance to heat, extreme pH and specific chemical reactions) and will develop and patent innovative technologies for producing, transforming and recycling a broad range of plastic materials.

[3] **Source:** April 2011, European Commission (DG Environment) – Plastic waste in the environment

About Carbios

Carbios is a young innovative green chemistry company whose mission is to find biological solutions to environmental and sustainable development issues faced by industrial businesses. The company is part of the "circular economy", which exploits and reuses waste. Carbios is developing innovative industrial bioprocesses for optimizing the technical, economic and environmental performance of polymers (including thermoplastic materials and synthetic or food-based fibers) by leveraging the unique properties of biological catalysts (enzymes). The company has initially chosen to focus its work on a strategic application sector: plastics. Carbios' growth strategy is based on a clear business model for industrial value creation that targets attractive markets, develops innovative, competitive bioprocesses and licenses them to major industrial stakeholders for commercialization. The company is positioning itself as an intermediary between basic research and industrial companies. Carbios was founded in 2008 with financial support from the leading European venture capital firm Truffle Capital[4] via the latter's *Holding Incubatrice Série I Chimie Verte*[5] fund. For more information, please visit: www.carbios.fr

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[4] **Truffle Capital** (founded in Paris in 2001) is a major European venture capital investor dedicated to creating technological leaders in the fields of information technology, life sciences, and energy. Truffle Capital manages €550 million in FCPR risk capital funds and tax-efficient FCPI innovation funds for French taxpayers (funds are frozen for seven to ten years). For more information, visit www.truffle.fr (http://www.truffle.fr) and www.fcpi.fr (http://www.fcpi.fr).

[5] Truffle Capital founded and continues to advise a series of "Holding Incubatrice" funds (www.holdingsincubatrices.com), which target equity investments in SMEs.