



twb
BIOSCIENCES & BIOPRODUCTION

PRESS FILE 2018

**Fast-track development
From Biosciences to Bioproduction**

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A word from Pierre Monsan Founding Director



Climate change requires industries to totally shake up the way they work in order to reduce their greenhouse gas emissions. Our community of scientific experts enables us to provide precise assistance to industries so that they can find new, sustainable bioproduction methods by offering them innovative alternative organic solutions, with high performances and low environmental impact, alongside conventional chemical processes.

Our objective is to pinpoint the latest scientific discoveries and to make them available to industries so they can create value, financial return and jobs.

With my experience as a researcher and an entrepreneur, and with the support of the entire TWB team, we hope to demonstrate that it is possible to reconcile the best science with the best industrial applications to meet the main challenges of the 21st century, i.e. the fight against global warming.

Our DNA: committed experts from biosciences to bioproduction.

Our Ambition: contribute to the development of the first eco-friendly factories!

A strong ambition: meeting the challenges of climate change

“Collective intelligence is the only way to meet the challenges of climate change.” Working in cooperation with the best experts in the industrial biology field is how industries will be able to take up this challenge and find new channels for eco-friendly bioproduction.

Professor emeritus at INSA Toulouse (University of Toulouse), the first Frenchman to have received the International Enzyme Engineering Award for his research work in enzymology, Pierre Monsan is recognised worldwide in the industrial biology field. Alongside his career as a researcher, he is also involved in creating and growing businesses. This twofold experience as a researcher and an entrepreneur has forged his view of the Research and Development world: while he praises the excellence of French research, he deplores that it generates such limited financial returns.

As an advocate of research that not only generates truly useful results that contribute to our knowledge and lead to practical applications, in other words meeting a precise need while preserving the environment, as well as generating financial return and jobs, Pierre Monsan launched TWB, an innovative structure in the industrial biology field, in 2011.

His objective: to forge new, more effective connections between researchers seeking practical applications for their research work and industries looking for new, eco-friendly bioproduction approaches.

Proven expertise in managing R&D projects

A real interface between the academic and industrial worlds, TWB provides the most favourable conditions possible to ensure the success of R&D projects, developing new kinds of collaboration in a win-win approach between industries and researchers that is simpler, more direct and thus more efficient. TWB detects industrial needs at the source and finds the most relevant solutions to meet them, simplifying and streamlining public-private scientific research projects in the industrial biotechnology field.

TWB owes its performance in conducting scientific projects first of all to the unequalled experience of its founder, Pierre Monsan, experience acquired in over one hundred research and development projects that they have carried out, the experience of his collaborators who have acquired a good understanding of industrial needs learnt in the field and, lastly, that of the researchers at the best public laboratories that are TWB's partners. TWB's efficiency is also due to their unique ability to align the interests of stakeholders from a variety of horizons (entrepreneurs, industries, academic researchers) through their network of partners and to forge relationships of trust amongst them, enabling them to work together more easily and more actively.

TWB has thus developed powerful expertise in scientific project management by adding simplicity, efficacy, creativity and responsibility:

- **Simplicity:** by simplifying the intellectual property rules and taking charge of the contractual aspects involved in collaborative research projects, TWB frees up industries from a heavy constraint and lets them start up their projects more quickly and with peace of mind.
- **Efficacy:** TWB combines quality and speed of execution, while remaining highly agile and flexible to adapt to all problems that may arise. Thanks to their experience and their network, TWB is able to detect and understand the needs of industries, to put them in contact with the right experts from the best public laboratories, taking charge and shortening contracting times between industries and public laboratories, and making state-of-the-art technologies and equipment available.

- **Creativity:** TWB encourages creative, collaborative research by financing risky innovative projects and by forging new connections with the best experts from start-ups, major industrial groups and public laboratories.
- **Responsibility:** TWB's mission is to take on the challenges of climate change by encouraging the use of renewable resources. The end goal is to generate financial return by encouraging creative scientific research that is the source of applications.

In a word, TWB:

- identifies the best profiles and makes state-of-the-art equipment available so that research projects run smoothly
- manages all of the scientific project's administrative formalities, notably reducing contracting times between public research organisations and industries, and taking charge of managing often complex intellectual property rules so the project can get off to a fast start
- finances research projects dealing with risky innovative subjects to encourage “scientific creativity”
- provides support for projects through to the creation and development of start-ups in the industrial biotechnology field.

TWB, the mentor for biotech start-ups

Because innovation goes hand in hand with creation, TWB dedicates time to start-ups. Expert advice, hosting, equipment supply and most importantly contacts with an industrial network (future customers) and investors, TWB contributes to the growth of the industrial biotechnology stars of tomorrow.

Spotlight on the start-ups currently hosted at TWB



Pili, the natural, biodegradable ink.

This start-up is reinventing ink with a blue colourant produced by bacteria. Often used in the textile industry, the blue used in dyeing jeans, for example, will soon be 100% bio-based and biodegradable.



MicroPep Technologies develops biostimulants and bioherbicides used to regulate plant metabolism naturally.



EnobraQ The **EnobraQ** start-up works on developing a lactic acid production process using a bacterial strain that takes its nourishment exclusively from CO₂.

Over time, the generalised use of this kind of technology could lead to the end of our dependence on fossil fuels such as oil and help to economise on the resources we need for food production, but could also contribute to reducing our carbon footprint.

The **Biotech Fine Chemical France** start-up seeks to use biology to develop chassis molecules for the production of compounds with high added value for the chemical industry.

"Hey, Start-me up!" - the biotech start-up event

The first edition of this event was held by TWB on 13 February 2018, notably with the support of Toulouse Métropole, with 130 participants from 11 countries, including:

- some forty start-up companies (EnobraQ, Pili, MicroPep Technologies, MetGen, Deinove, Global Bioenergies, SilicoLife, BFC France, Aviwell, Syngulon, Antabio, ...)
- biotechnology innovation and promotion organisations (Labiotech.eu, Pôle IAR, Europabio, French Tech Toulouse, ...)
- companies (L'Oréal, Michelin, Adisseo, Lallemand, ...)
- investors (BPIFrance, Wiseed, Sofinnova Partners, Auriga Partners, IRDI, ...)
- banks looking for innovative solutions.

Objectives: presentation of the European biotech ecosystem, host structures and sources of financing, and discussions on the phases in the life of a start-up.

Award: the **Dust BioSolutions** start-up was in the spotlight through the 'Pitch Me Your Biotech Start-Up!' competition organised by TWB during this day, with a prize of 4 months of services on the TWB technology platforms and scientific and business support for the project worth €50,000. Thanks to a thin-layer process using micro-organisms from the soil, this German start-up based in Munich controls dust emissions, stabilises sloping ground and offers new solutions to replace oil-based chemical binders in many industrial applications. Concretely, dust is changed into stone!

Success Stories: start-ups that are now publicly traded companies

- **Amoeba - a revolution in water treatment.**
Since 2014, the company's collaboration with TWB has led to the development of clean technology - using no chlorine - for treating water that contains microbial films, notably from industrial cooling towers, and preventing Legionnaires' disease. Amoeba raised €13 million in 2015, €18 million in 2016 and, in 2017, received support from the European Investment Bank (EIB) with a €20 million loan.
- The creation in 2016 of **Carbiolice**, a joint venture between the Carbios start-up and the Limagrain group, was the fruit of the results obtained under the Thanaplast flagship project orchestrated by TWB. Carbios, a specialist in green chemistry, develops innovative enzymatic processes for “**rethinking the life cycle of plastics**”.

Testimonials

A powerful industrial reputation

L'ORÉAL *"Being a member of the TWB consortium means having access to innovative technologies and approaches whose industrial applications, I hope, will lead to breakthroughs in our field. Moreover, TWB's ethical and responsible approach is in line with our group's strategy in terms of sustainable development. "*

Luc Aguilar, Biological and Clinical Research Director, L'Oréal.

An innovative success story



"After more than five years of collaboration with TWB, the concluded partnerships have clearly been the vectors of acceleration and innovation, delivering outstanding results"

Jean-Claude Lumaret, Director General, Carbios.

Major collaborations



"The collaboration with TWB will make a major contribution in strengthening the unique expertise that we have built around Deinococcus and in increasing the performance of our strain."

Emmanuel Petiot, Director General, DEINOVE.



"One of the company's major issues was to industrialize its production process for amoebae. TWB's expertise in association with AMOEBA's R&D teams have made it possible to successfully knock down the technological barrier."

Fabrice Plasson, President and co-founder, AMOEBA.

Business start-up support



"TWB is an excellent lever for developing the industrial biotechnology market. EnobraQ is Sofinnova Partners' eighth investment in industrial biotechnologies. It is symbolic of our seed funding policy: a risky, upstream project, but one that has huge potential."

Denis Lucquin, Managing Partner, Sofinnova Partners



"At first, TWB helped us to structure our business plan. Today, we enjoy an exceptional scientific environment that covers a broad spectrum - from automated strain screening to routine production in 20-L fermenters - which enables us to speed up our growth and to approach industrialisation."

Jérémie Blache, President, PILI.



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A wide network of partners

As it has grown, TWB has built a wide-ranging network of partners who share the same objective: finding new sustainable production channels to meet the challenges of climate change. As of 1 January 2018, the TWB consortium included 46 public and private partners:

- **8 large companies:** Adisseo, Braskem, L'Oréal, Michelin, Roquette, Servier, Solvay, Total
- **22 SMEs / start-ups:** AB7, Agronutrition, ARD, Deinove, Helioscience, IPSB, METabolic EXplorer, Protéus, Bgene, Carbios, CIMV, EnobraQ, Global Bioenergies, Heurisko, Innoval Sud-Ouest, MicroPep Technologies, MilliDrop, Naturamole, Pili, Processium, Syngulon, IFPEN
- **4 investors:** Auriga Partners, Bpifrance, IRDInov, Sofinnova
- **3 tech transfer structures:** Bioaster, INRA Transfert, Toulouse Tech Transfer
- **2 competitiveness clusters:** Agri Sud-Ouest Innovation, IAR
- **3 institutional bodies:** INRA, INSA et CNRS
- **1 higher school:** ESES (ICT)
- **3 regional and local authorities:** Toulouse Métropole, La Région Occitanie, Sicoval

TWB also works with many public laboratories, notably INRA, INSA Toulouse and the CNRS, which are recognised internationally for their expertise, such as the Laboratory of Biological Systems and Process Engineering (LISBP – INSA/INRA/CNRS) at INSA Toulouse (University of Toulouse).

Key figures

- Turnover in 2017: €8 M;
- 85 TWB employees from the world of industry and academia, including 20 permanent jobs;
- 3 leading edge technical platforms with highly automated equipment;
- 5 start-ups hosted since 2012;
- 105 R&D projects since the creation;
- 45 active projects in 2017, included 26 new;
- €1 M a year in financing for risky research projects;
- nearly €100 M in funds raised by the start-ups receiving support from TWB;
- since the creation, more than 15 academic laboratories overall have been involved in 105 projects.

TWB status:

- TWB (Toulouse White Biotechnology) is a Mixed Service Unit (Unité Mixte de Service – UMS) under the joint administrative control of INRA/INSA/CNRS, managed by INRA.
- Winner in March 2011 of the national call for projects made by Investissements d’Avenir “Health and Biotechnology – Preindustrial Demonstrators”, TWB receives state aid, managed by the National Research Agency (ANR-10-DPBS-02-01).

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