

Where energies make tomorrow ●

Life Sciences

Engineering and project management excellence in biopharmaceuticals

T.EN

**TECHNIP
ENERGIES**

Biopharmaceutical worldwide presence

Our Life Sciences team has successfully designed and built over 350 pharmaceutical and biotechnology facilities around the world. With more than 25 years' experience in engineering and project management, we safely deliver the best solutions adapted to our clients' requirements.

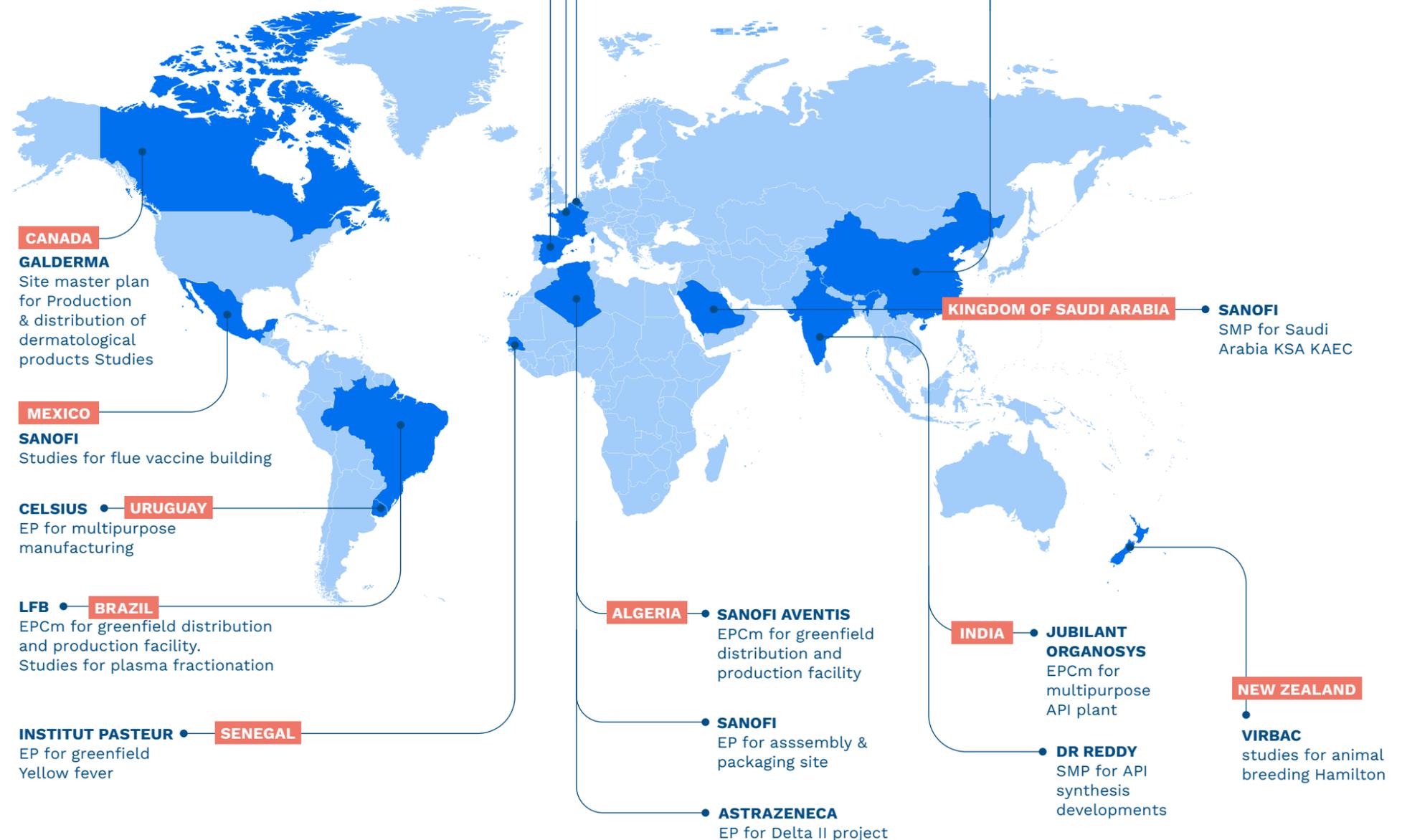
With a strong, talented and agile team, we have become a leading provider of technical and regulatory solutions that are both future proof and cost effective.

Leading design and construction of plants for tomorrow

When designing and constructing biopharma facilities, we bring together our know-how and expertise in process engineering, construction management, commissioning, and qualification. As such, we are able to serve our customers with fully integrated projects from design to validation.

Our recognized expertise is a strategic asset that drives our competitiveness from small to large scale projects.

- +250** WORKFORCE DEDICATED TO THE LIFE SCIENCES
- UNTIL **€500M** PROJECT CAPEX
- AN AGILE AND FLEXIBLE ORGANIZATION
- +25** YEARS OF EXPERIENCE



Full range of services

A key player in biopharma and fine chemicals

Technip Energies has successfully designed and built biotechnological and fine chemicals facilities, from concept design to commissioning. Our experience covers all types of services and contracts, ranging from project management consultancy services to lump sum contracts besides all types of contractual relationships.

We have the expertise and international know-how to execute, upgrade and revamp existing facilities as well as grassroot plants. We also support our clients in addressing emerging challenges in the industry, and develop our own solutions in preparation for 4.0 plants.

Biotechnologies	Pharmaceuticals	Fine Chemicals
<ul style="list-style-type: none"> • Plasma derivatives • Vaccines • Therapeutics proteins 	<ul style="list-style-type: none"> • Sterile plants • Oral solid dosage plants • Liquid plants • R&D and QC labs 	<ul style="list-style-type: none"> • Active Pharmaceutical Ingredients (API)



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GMP regulations know-how

Our high-level knowledge of worldwide GMP* regulations allows us to deliver compliant facilities, tailored to our clients' needs and constraints.

We have extensive experience in designing plants and facilities that are compliant with European, U.S., Brazilian, and WHO GMPs, and all our projects include a GMP risk assessment review.

Our experts are also involved in various industry associations and bodies (such as ISPE and A3P) that allow us to share best practices and prepare for emerging regulations.

We are notably participating in the new EU GMP Annex 1, providing our comments on the draft and keeping up to date with discussions relating to sterile medicinal products. That represents a real added value for our projects, which must clearly comply with both today's and tomorrow's regulatory environments.

*GMP: Good Manufacturing Practices

Unmatched expertise

Our approach is based on bringing differentiated, high quality and indispensable engineering services to all our projects. Our teams combine the best international expertise with local project know-how to provide a robust and competitive solution.

Expertise and innovation designing the plants up tomorrow

PROCESS AND CLEAN UTILITIES PORTFOLIO

- Biotech products: Vaccines, mAbs, protein therapeutics, with all unit process operations such as bioreactors, buffer and media preparation, chromatography, fermentation, ultrafiltration, nanofiltration, using single use or stainless steel equipment, fill and finish, assembly and packaging.
- Active Pharmaceutical Ingredients
- Oral solid dosage, parenterals, inhalation products, medical devices, continuous process
- Clean utilities as CIP/SIP system, WFI, Pure Steam, H2O2 decontamination

IN-HOUSE TECHNICAL DISCIPLINES NECESSARY FOR PROJECT CONCEPT AND EXECUTION

- Black utilities
- HVAC
- Structure, civil, clean panels
- Electricity and low current
- Electrical and automation, IT



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EXPERTISE AND INNOVATION IN DESIGNING THE PLANTS OF TOMORROW

- Site Master Plan performances
- Robust industrial organization and logistics
- Reliable cost estimate
- Strong constructability know-how
- Sustainability studies
- Focus on HSE performance
- BIM management
- High capacity to innovate and design the plants of tomorrow

Technip Energies's mindset of continuous improvement means that we constructively challenge our processes framework. We work in close collaboration with our clients, and with internal and external stakeholders.

Project management excellence for successful delivery

Project management – from design to construction and qualification – is our core activity and the key to our successful track record. We are a leading full-service provider of integrated solutions based on a robust combination of technologies, expertise and know-how in biopharma facilities.



350 Pharmaceutical and biotechnologies facilities delivered

Our fully committed teams work in a collaborative manner to meet our clients' quality requirements and budgetary constraints. Technip Energies aims to provide improved and sustainable results, constantly innovating end-to-end for greater efficiency.

PROJECT MANAGEMENT PORTFOLIO

- Project management and construction management
- Cost estimates, scheduling
- Project control and reporting
- Procurement, subcontracting, and contract management
- 3D model execution tools
- Documentation control
- Commissioning and qualification services

Client focused

The experience and know-how of our multidisciplinary teams allow us to deliver optimal solutions through:

- Time-line certainty
- Cost-effective solutions
- LEAN design
- Deep understanding of client drivers
- Risk based approach
- Long-term partner
- Customer satisfaction

“

1 Billion € of CAPEX managed in parallel for our clients' projects.”

Over 250 employees dedicated to the life sciences*



CLIENT FOCUSED
FULL SCOPE



SKILLED RECOURCES
FULL EXPERTISE



PROJECT FOCUS
COST AND TIME EFFECTIVE

OUR AGILE TEAMS

The talent and experience of our skilled workforce is one of our greatest assets. Our highly qualified experts understand the key drivers of the industry and of our individual clients.

150 EMPLOYEES HAVE 8+ YEARS' EXPERIENCE IN THEIR DISCIPLINES

We have 50 lead seniors with 15+ years' experience in the life sciences. Our project organization benefits from a robust network of over 140 experts in Paris and Lyon, covering all technical and non-technical disciplines. They are all highly qualified in their field(s) of activities. That expertise is key to our proven record of successful projects.

Experts play a leading role in both the strengthening of our capabilities and the development of our technologies. They are a key component in our competitiveness and differentiation.

*reinforced by group employees

TECHNIP ENERGIES' LEADING DISCIPLINES

- Project directors and managers
- Schedulers
- Cost controllers
- Buyers
- Pharma experts
- Process engineers
- HVAC engineers
- Clean and black utilities engineers
- Civil engineers
- HSED engineers
- HSE managers
- Constructability leads
- Construction engineers
- Electrical engineers
- Doc controllers
- Subcontracting leads
- Estimate engineers
- Draftspersons

High value provider

We are committed to meeting all engineering challenges and adding value for our clients.

Robust methods in executing projects, continuously improved by our experience and projects

Strong **expertise** in pharmaceutical processes, lean layouts and equipment design

Lean **approach**: avoiding waste in time and financing, focusing on added value actions, using visual management and interactive workshops to improve efficiency

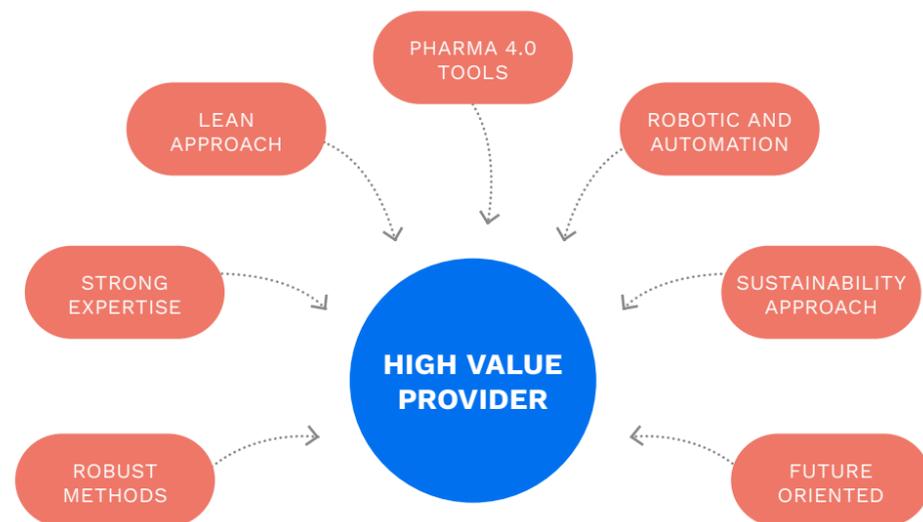
Digital tools to contribute to the pharma 4.0 transformation: digital twin, data integration, dynamic simulation, plugged factory

Robotics and automation to guarantee product quality and plant efficiency

Sustainability approach: environmental efficiency, energy savings, green constructions

Future oriented design: flexible process design, 4.0 plants, preparation for future regulations

We achieve better, more flexible and highly cost effective results through a combination of skills and experience in the areas of innovation, engineering, project management, and collaboration. We have an in-depth understanding of the needs of our clients in all industry segments.



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Project References

LFB

- Greenfield
- Arras
- EPCm
- Process: Plasma fractionation, Aseptic filling



BIAH

- Antares new production unit
- Lyon
- CD, EPCm
- Process: Biotechnology, bioreactors, vaccine formulation



LFB

- UDEC NEW production building
- Les Ulis
- CD, EPCmV
- Process: Blood fractionation



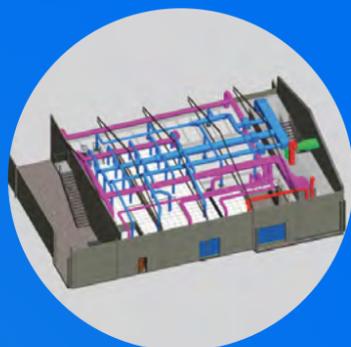
ASTRAZENECA

- Everest
- Dunkirk
- EPCm
- Process: Finished dose product, QC Laboratories, Logistics



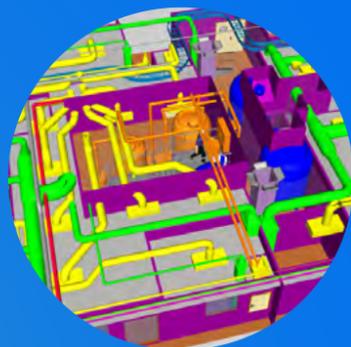
GENZYME

- Industrial platform for immunotherapy production
- Lyon
- EPCmV
- Process: Biotechnology



IPSEN

- Revamp of Building 3 for high speed filling line integration
- Dreux
- CD, EPCmV
- Process: Finished dose product, filling, packaging



CEVA

- Site optimisation
- France, Italy, China
- Site master plans
- Process: Oral solid dose, liquid, aseptic filling, QC, logistics, biotechnology



UCB

- Frame Agreement
- Process: Logistics, biotechnology, API

BELGIUM



SANOPI PASTEUR

- Expansion of flu bulk vaccines production plant
- Shenzhen
- CD, EPCm
- Process: Biotechnology, filling, vaccine formulation, QC

CHINA

FRANCE

SPAIN

ALGERIA



BIAH

- Respimat, sterile inhalator project
- EPCmV
- Process: Finished dose product, sterile



SANOPI AVENTIS

- New grassroots production site
- Algiers
- CD, EPCmV
- Process: Oral solid dose, liquid, solid filling



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