Since its inception in 2006, INFINITEC ACTIVOS has been an independent, technology-based, private biochemical company that provides active ingredients to the cosmetic and biotech industry.

INFINITEC specializes in the research, process development, synthesis and manufacturing of peptides, high-tech delivery systems and other innovative active ingredients.

Since its foundation, INFINITEC ACTIVOS has been focused on bringing its business and products closer to our valued customers with the aim to be the market leader in our specialty fields thanks to a novel approach to research, development of new products and technical processes.

Quality being paramount, INFINITEC has been committed to it from the very onset, embedding quality as a strategy and corporate responsibility. In this respect, our primary goal has always been to serve our customers with the highest quality products and technologies in order to set a new standard in the life science industry.

With headquarters at the Barcelona Science Park (BSP), INFINITEC is set to potentiate quality research with the support of a wide range of technologies. The result of this cooperation is the creation of a multidisciplinary space which integrates technologies in high-tech knowledge platforms.

INFINITEC’s knowledge campus is born.

www.infinitec-activos.com
Submicrometric technology platform (PTsm)

- Delivery systems using Aqueous phase technology (APT)
- Delivery systems using Ultra thin molecular films (UTMF)
- Delivery systems using Liposomes (LPD)
- Delivery systems for hair using Hair Micro Adhesives (HMA)
- Delivery systems using Polarsomes

The Cosmetic Drone™

Functionalized polyurethans platform (PTfp)

Combinatory chemistry platform (PTcch)

- Biomimetic peptides
- Neuropeptides
- Peptide hybridation
- Peptide conjugation
- Tissular engineering

Blue Biotechnology platform (PTbb)
Submicrometric technologies Platform (PTsm)

Delivery systems using Aqueous Phase Technology (ATP)

Delivery systems in aqueous phase use diatoms, a type of unicellular, eukariotic algae found throughout marine and fresh water ecosystems, as a driver. Diatoms are capable to silicate, a process by which they trap and mineralize silica that is essential to build their own skeletons.

Based on diatoms, INFINITEC is able to mimic the nature and reproduce diatoms skeleton-like structures. As silicateins are shown to catalise depositions of silica in vitro, so as a result they produce stable microstructures at room temperature and neutral pH. Such properties turn them into a suitable carrier to vehiculize some specific cosmetic active ingredients.

Type of products
- Regen Plus (soy isoflavones)
- Aqua Shuttle (laminaria extract)
- Multivit Shuttle (vitamins)
- Si-Matrix (organic siliceous)
- ...

Delivery systems using Ultra Thin Molecular Films (UMTF)

Molecular films are composed either of one or several layers of amphiphilic molecules. Because an hydrophilic and hydrophobic part are included in the same structure, they are located at the air-water surface. By laboratory techniques, the layers of molecular films are created by combining surfactants. Such depositions allow to create a sandwich structure in which active ingredients are protected by surfactant layers and become an effective and sustained delivery system for many cosmetic actives.

Type of products
- UTMF Ceramide III
Delivery systems using Liposomes (LPD)

LPD capsules are natural phospholipid-based delivery systems for a controlled and sustainable release of cosmetic active ingredients. LPD capsules are analogous to cell membranes so it turns them into a natural delivery system for many type of actives.

LPD capsules increase the efficacy of the ingredient as long as decreasing the toxicity of some actives so the non-desirable side effects are minimized. LPD capsules show a better absorption, penetration and diffusion profile to the active ingredient and ensure its stability and bioavailability throughout the skin.

![Diagram of Liposome](image)

Type of products
- LPD Lightening
- LPD Multivitamin
- LPD Slimming

Delivery systems for hair applications using Hair Micro Adhesives (HMA)

Encapsulation technique based on the induction of the partial polymer desolvation than it is then deposited in the form of coacervated droplets around the active ingredient. The phase separation (coacervation) is induced by a pH variation that produces an electronic restructuring of the system resulting in an agglomerate or coacervate that separates itself from water.

![Image of Hair Micro Adhesives](image)

Type of products
- HMA Silky
- HMA UV Shell
- HMA Conditioner
Water is an essential element of the skin. When cells lose their water reservoirs, all their metabolic processes are then affected. Water molecules attract each other due to the H-H bond effect and the reason why they are actually organized in clusters. **Polarized water allows clusters being smaller so that water absorption through cell walls are bettered.**

APS Polarsomes are **microvesicles of natural phospholipids in a polarized water medium which encapsulate and deliver cosmetics active ingredients to the skin.**

**Type of products**

3D Hydra APS

**The Cosmetic Drone™**

Infinitec introduces **Cosmetic Drones, the most advanced delivery system for active ingredients.** This revolutionary system **targets specific cells and releases active ingredients where needed.** This selectivity allows a low dosage concentration making it a cost effective powerhouse. Infinitec **Cosmetic Drones technology provides high efficacy, in a sustained and safe manner for maximum results.**
The cosmetic drone’s construction requires a chemical bond between specific external ligands and the X50 capsule. Each drone has a specific mission with a specific target. The external ligand dictates the mission and directs the specific X50 capsule to the specific target receptor cell.

The efficient and specific delivery of an ingredient is a critical challenge in any cosmetic treatment. The Infinitec Drone Technology minimizes that challenge with a range of X50 capsules. With the Drone Technology you can achieve your desired cosmetic result by entrapping an active ingredient in an X50 capsule composed of biocompatible polymers.

### Turning X50 Capsules™ into Cosmetic Drones

The cosmetic drone’s construction requires a chemical bond between specific external ligands and the X50 capsule. Each drone has a specific mission with a specific target. The external ligand dictates the mission and directs the specific X50 capsule to the specific target receptor cell.

### Type of products

- X50 Antiaging
- X50 Silhouette
- X50 Myocept
- X50 Lightening
- X50 Pure White
- X50 Photoglow
- X50 Hyalufiller

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**X50 Capsule™**

*Biocompatible polymers*

**External ligands**

*Ligand - target receptor*

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**Type of products**

- X50 Antiaging
- X50 Silhouette
- X50 Myocept
- X50 Lightening
- X50 Pure White
- X50 Photoglow
- X50 Hyalufiller
Polymeric microcapsules containing active ingredients have been proposed and already used as biomedical carriers for delivery to different parts of the human body. They are finding a large number of applications due to their versatile character.

They are biocompatible and biodegradable. Specially surface functionalized microparticles have been developed to reach a good balance between stability to environment which avoids oxidation, loss of efficacy, and easy delivery.

INFINITEC polyurethan microcapsules are specially prepared between 0.5 to 5.0 microns particle size which are suitable and specifically developed for cosmetic applications. They are manufactured in building blocks and their versatility lies in there, so they can be functionalized to achieve different mechanical properties such as sun care applications including UV protection; products for hair care in colour protection, and hair surface treatment or phase change materials (PCM) to protect the skin against either high or very low temperatures...

Type of products

RETICAP: Encapsulated retinol
Biomimetic peptides

Peptides are made up of individual amino acids. Their sequence and the arrangement of their chains determine their function. Biomimetic peptides are identical to the skin's peptides, and act on the physiological mechanisms of the skin with a high specificity. Biomimetic peptides are not complete copies of the amino acid sequence, rather they are small, active sections. Peptides can be used to identify and optimize leads for a wide range of targets.

Neuropeptides

The cutaneous neuro-immuno system (CNIS) is a novel concept of cutaneous biology. Cosmetic problems of the skin are sorted out and they become now achievable when interacting with the Cutaneous Nervous System. Neuropeptides or "intelligent cosmetic" consist of the application of topical administration of synthetic neuropeptides whose neurophysiologic action performs cosmetic and esthetic benefits as well as wellness benefits.

Type of products
Bronzing S.F. peptide
Hybridated peptides

Synthetic peptides are hybridated to another molecule in order to obtain a synergistic or complementary effect.

In a traditional peptide chemistry, building blocks are introduced with all functional groups but one protected. Either the formation of amine bonds in solid phase and other reactions are easy: ester formation, deprotection (Ally/Alloc groups, Fmoc, etc). The binding is not in the peptide sequence and carried out in the solid phase without the use of base to avoid side reactions. Fewer changes in the molecule composition are made.

Conjugated peptides

Peptides are conjugated to other particles by using complementary technologies. First, peptides are synthesized to obtain a given synthetic sequence with a specific activity. Then, the particle is conjugated to the obtained synthetic peptide in order to stabilize and deliver these peptides to the target cell in a better sustainable release profile.

Mass Spectrometry Core Facility (Barcelona Science Park): It provides INFINTEC with modern chromatographic and mass spectrometric tools for the identification and characterisation of a broad range of biological species. The facility is equipped with high accuracy and high resolution mass spectrometers with newly incorporated mass spectrometry (MS) techniques. The facility performs method development for the identification and characterisation of various biological species, from small molecules to large biomolecules (e.g. intact proteins).
Tissue regeneration is the instrumental line to follow for repair, substitution and tissue regeneration itself, by using new technologies that emerge from several scientific disciplines (biomaterials, dermatology…).

New and unprecedented solutions for tissue lesions have become possible by means of cellular and tissue engineering and, in particular, by using biological materials such as natural and synthetic in order to provide structure and shape for tissue assembly. In skin, it essentially plays a role in the recovery from damage and aging.

Self-assembling peptides are among the most common biomolecules that, in recent years, have been considered for biomedical purposes. Peptides have been synthesized to form 3D fibril scaffolds with a bioactive surface capable of inducing specific reactions and build new structures to help tissues to recover.

Many research groups have focused their investigation in synthesizing self-assembling peptides mimicking the extracellular matrix (ECM) structure and evaluate their potential application in cosmetic tissue regeneration.

INFINITEC’s first approach to tissular engineering comes with Renaissance.
Blue biotechnology is concerned with the application of molecular biological methods to marine and freshwater organisms. It involves the use of these organisms, and their derivatives, for multiple purposes, one of the most remarkable, the identification, process and development of new active ingredients from marine origin.

However, the potential for developing marine active ingredients remains mainly unveiled, due to the enormous diversity of sea organisms (most of them unexplored yet). INFINITEC has access to one of the largest and more diverse marine micro organisms collection, which provides a rich platform for screening all possible cosmetic activities.

Marine micro organisms are prospected and classified. Isolated strains are collected in a strain library that will eventually scale up to an extract library. Potential cosmetic activities are detected by screening and compounds are fractioned and included in a compounds library.
Strain, extracts and compounds libraries

Microbial chemical diversity is achieved from geographic, ecological or methodological diversity.

Extracts library

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Compounds library

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Product screening and testing as cosmetic actives

Our experience and know-how in the research, selection and development of active ingredients means the easiest way for this products to be marketed in the cosmetic field (which were originally developed for the medical and pharmaceutical industry). After the product is screened and tested in skin cells, viable compounds are selected and toxicologically tested before being viable for the cosmetic market. Selected active ingredients will be then in vitro and in vivo tested in cosmetic applications to ensure their efficacy and activity.

Type of products

Marine c-Thiopeptide
Stem cells are non-programmed and undifferentiated cells found in multicellular organisms that have a large capacity of self-renewal. The behaviour and characteristics of stem cells depends on the signals from the neighbouring environment and epigenetic factors, which induce changes in gene expression. Their special properties provide stem cells with a great potential for regenerative medicine and cosmetic applications.

In skin, the better known stem cells are in the epidermal basal layer. They are crucial to replenish the skin cells lost because of continual shedding and the differentiation process of keratinocytes. Then, they are crucial to create healthy new skin. Once depleted, the number of lost or dying skin cells outpaces the production of new cells, threatening the skin’s functionality.

NatureCells cultures allow a biotechnological production of stem cells of specific plant species, enriched in epigenetic factors and specific metabolites and vehiculized in liposomes to enhance its penetration.

The efficacy of NatureCells have been substantiated in vitro and in vivo.

**Type of products**
- NatureCells Antiaging
- NatureCells Hydragensis
- NatureCells Anti stretch marks
Platform technology is a term that enables the creation of products and processes that support present or future development. It establishes the long-term capabilities of INFINITEC to research and development high efficient actives for the future cosmetic market.

For INFINITEC a platform technology is of great importance for easing the future research work as creates a solid base platform for the researchers to optimize common resources and make synergies with other similar technologies already developed.

INFINITEC’s proprietary technology platforms and deep expertise gives the market the edge in developing innovative cosmetic active ingredients with advantageous properties. Its ability to combine the understanding of customer needs with cutting edge tools and capabilities enables it to target the cosmetic business in unique ways, resulting in technology platforms that distinct value in its markets.

INFINITEC is located at the Barcelona Science Park. The BSP is a meeting point in which university, business and society come together and its objective is to promote innovation, particularly, in the life science. Being the first science park in Spain, it has become an international point of reference in the promotion of science with more than 2000 professionals. The Science Park is home of research institutes and a wide range of research support technology and structures that provide state-of-the art technology, resources and specialized know-how.
The Cosmetic Drone™
Peptide synthesis
Combinatory chemistry
Delivery systems
Functionalized polyurethans
Tissular engineering
Marine active ingredients
Natural ingredients