



# CELLOPHIL BIOMEDICAL POLYMER

## Opportunity

CIS Pharma has developed Cellophil™, a platform of novel polymers based on amino-acid groups. The platform polymers show superior biocompatibility in comparison to polymers currently used in biomedical applications such as PMMA, MMA, HEMA etc.

Cellophil™ polymers are also designed for drug delivery. Cellophil™ systems can be loaded with active compounds with controlled release. Our current developments include drug delivery systems

- (1) in ophthalmology
- (2) in dermatology
- (3) in oncology
- (4) as dual drug-eluting stent

and novel contact lens materials.

We continuously expand the Cellophil™ platform to discover new polymers with applications in orthopaedics, reconstructive and vascular surgery and as additive for food and cosmetic products.

## Technology

CIS Pharma has developed and patented different Cellophil™ polymer structures based on amino-acids such as lysine, serine, tyrosine, cysteine, hydroxypoline and threonine, combined in different ratios with acrylics. Chemical and physical characteristics of the final product are controlled, such as hydrophilicity, hydrophobicity, water content, porosity and pore struc-

ture, optical clarity, UV absorption, adhesive properties, surface texture, permeability and others.

Cellophil™ polymers can be heat sterilized. Whatever the composition of the Cellophil™ polymers, they are highly biocompatible.

Biocompatibility was initially shown by measuring the rate of cellular growth of differentiating fibroblasts. Cellophil™ polymers are superior to HEMA, PMMA, MMA and other commonly used polymers. Shown biocompatibility of Cellophil™ is as high as in collagen, the natural human polymer.

Safety studies included intradermal reactivity, hemolysing potential, cytotoxicity potential, allergenic potential, hyperemia, haemorrhage, coagulation and thrombosis. All safety studies confirmed the biocompatibility of Cellophil™ polymers. Therefore Cellophil™ polymers create new applications of polymers as biomedical devices and improve the acceptance of currently used polymers in implants and medical devices.

A special focus of our approach is the use of Cellophil™ to deliver drugs to targeted sites. Drugs applied into the Cellophil™ systems may be charged positive or negative or can be lipophilic without charges. With a special technique we load Cellophil™ matrices and control the release of the compound.

Cellophil™ thermo-responsive polymers are a special group

of polymers that are liquid at ambient temperature and solid at body temperature. The transition is reversible and the transition temperature can be controlled.

Cellophil™ thermo-responsive polymers provide a drug delivery platform for wound dressings with accelerated wound healing. Based on Cellophil™ thermo-responsive polymers CIS Pharma has developed with IIT / Pritzker a non-invasive drug delivery system to carry active ingredients from the conjunctiva to the anterior and the posterior chamber of the eye for treatments of uveitis, AMD and others.

## CIS Pharma

CIS Pharma is a pharmaceutical research company specialised in drug delivery. It is located in Bubendorf, Switzerland, near Basel. The key business of CIS Pharma is to discover novel active pharmaceutical ingredients and drug delivery systems in the fields of ophthalmology and dermatology. For over 50 years, CIS Pharma has been patenting and licensing innovative technologies to a wide range of life sciences companies.

## Contact

CIS Pharma welcomes your interest in Cellophil™ biomedical polymer platform.

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