

THE WORLD OF PEPTIDES

WHAT ARE PEPTIDES?

Peptides are chains of 2 to about 100 amino acids. Longer chains are called proteins. Peptides are organic compounds made up of natural amino acids in living organisms. Originally isolated from biological sources, they are synthesized chemically today. The biological properties of peptides depend on the number of amino acids involved and their position in the chain. The 20 natural α -amino acids are sufficient to form the basis for an unimaginably large number of peptides, each with their own distinctive physical, chemical and biological properties.

WHAT ARE PEPTIDES USED FOR?

Peptides are mainly used as highly active and highly specific drug substances. In keeping with the diversity of their biological functions, they are used in an extensive range of therapeutic areas. Oncology, diabetes and obesity are three prominent examples

of therapeutic areas in which peptides generate billions of dollars in revenues. Peptides are much in demand in the treatment of cardiovascular and neurodegenerative diseases, renal failure, as antibiotics, in vaccines and in drugs for rare diseases (orphan drugs).

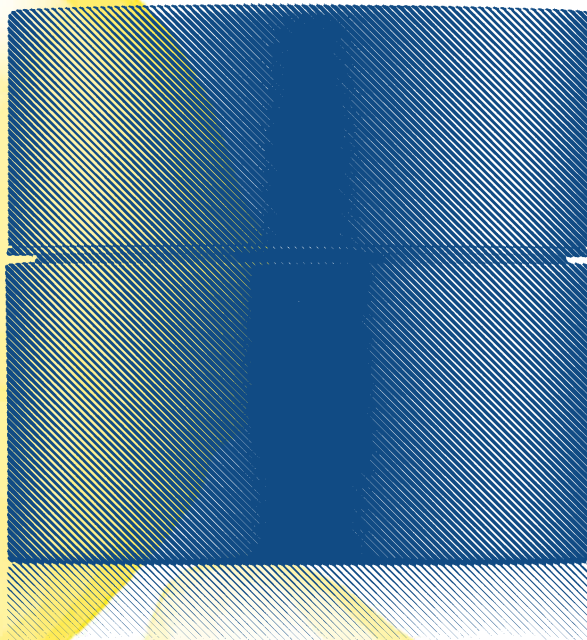
AVAILABLE DOSAGE FORMS

Peptides taken orally would undergo rapid breakdown in the digestive system and would therefore be unlikely to reach their target organs. Peptide-based drugs are usually administered by the parenteral route for that reason. In addition to conventional injections, implants with durations of action ranging from a matter of days to months and nasally delivered drugs are increasingly becoming available. Research and development activities are ongoing on sublingual and transdermal dosage forms and drug delivery using nanoparticles for transport.



COSMETICS

Peptide-based agents are used in top-end personal care products, for example as ingredients in anti-aging products that promise to reduce wrinkles.



NUTRITION PRODUCTS

The artificial sweetener aspartame is a dipeptide that is 200 times sweeter than table sugar. It is an important agent in diabetology.

CANCER THERAPIES

Peptides are useful in oncology both in diagnostic imaging procedures and for treatment purposes.

