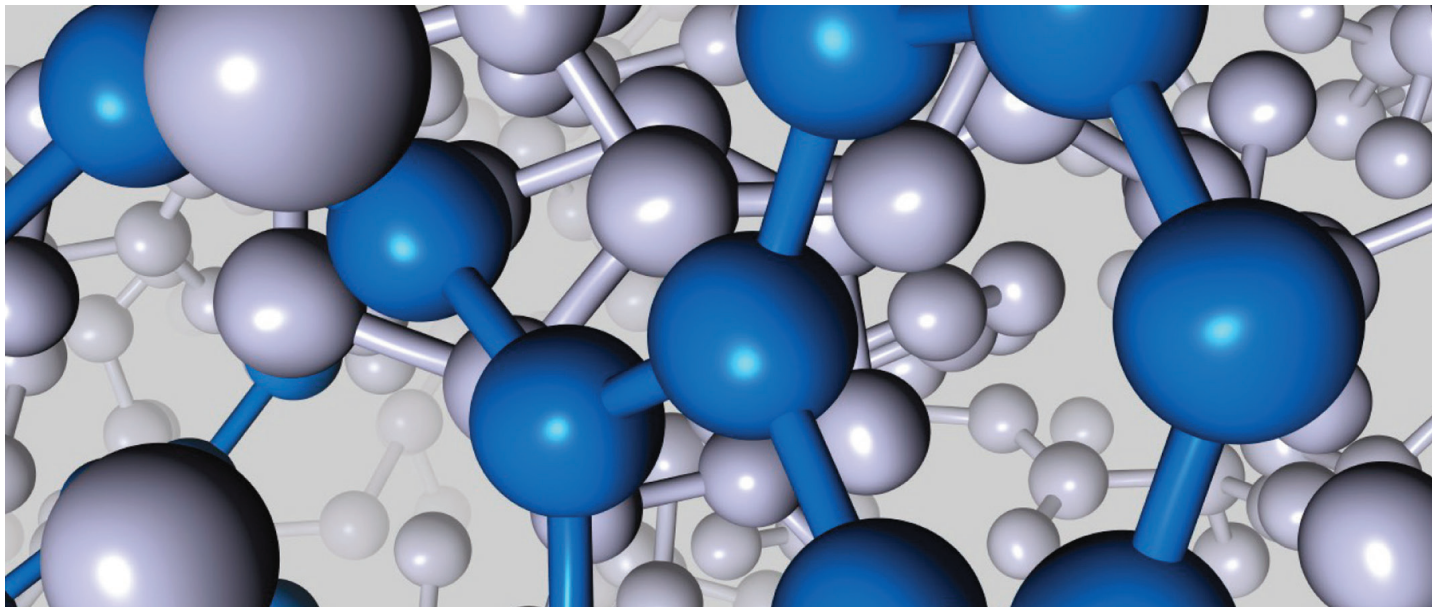


Formulation of Biomacromolecules

– In your formulation

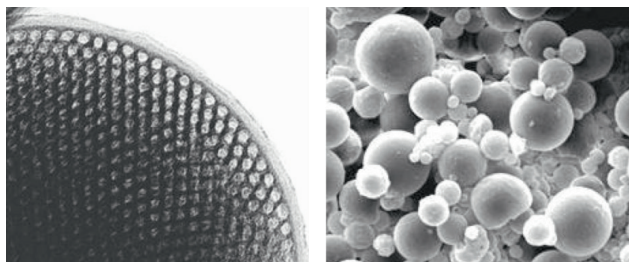


Formulation of Biomacromolecules

Our unique competence in colloid and surface science enables us to design smart and functional formulations for macromolecules like peptides, proteins and polymers.

Specific aims to

- Increase stability of actives
- Control and target the delivery of active substances
- Evaluate the compatibility with delivery systems and materials
- Formulate in functional delivery systems



Different approaches

Choice of excipients

Selection to increase performance

Carrier materials

Microparticles: Mesoporous Silica, Hydrogels/Microgels

Nanostructured materials: Lipid and surfactant self-assembly

Dry formulation technologies

Spray-drying, Freeze-drying, Spray-freeze drying

Administration routes

Oral, intravenous, intramuscular, subcutaneous, topical, pulmonary, nasal, vaginal

Dosage forms

Solutions, emulsions, suspensions, foams, gels, semisolids, patches, powders, tablets

Characterization

Our advanced instrument park enables us to characterize the formulations in detail and to obtain information about the functionality of the system and interaction with other components.

	Key technologies	Information/Output
Processing Equipment	High shear mixers Homogenizer, Microfluidizer	Homogenous mixing Monodispersity
Standard Characterization	Optical Microscopy Rheology DLS (Dynamic Light Scattering) Electrophoretic mobility Pendant /Oscillating Drop method Turbiscan TAGS FTIR (Fourier Transform Infrared Spectroscopy) Fluorescent spectroscopy	Morphology, Phase behaviour Viscosity, rheological properties Particle size, Particle size distribution z-potential Dynamic surface tension, Dilatational elasticity, Contact Angle Physical stability Conformation Hydrophobic interactions
Advanced Characterization	Confocal Raman Microspectroscopy ESEM (Environmental scanning microscopy) Imaging mass spectrometry (TOF-SIMS) XPS (X-ray Photoelectron Spectroscopy) AFM (Atomic Force Microscopy)	Distribution of components, penetration, diffusion Morphology Distribution of components, chemical surface analysis, Chemical surface analysis Topography, adhesion, molecular forces, mechanical properties
Adsorption Techniques	Ellipsometry QCM-D (Quartz Crystal Microbalance) DPI (Dual Polarization Interferometry)	Adsorbed amount, film thickness Adsorbed amount, viscoelastic properties Adsorbed amount, film thickness
Perception	MTM (Mini Traction Machine) Force Board	Oral lubrication Tactile properties