

*Nano*Improve™ the Performance of Your Formulations

Small and Large Molecule
Formulations Across
the Product Life Cycle.



Oral
Formulations



Long-Acting
Injectables



Respiratory
Powders
& Suspensions



Hydrogels



Ophthalmology



Higher Dose
Load for Oral drugs,
mAbs, Peptides and
Proteins



Improved
Bioavailability



Superior Alternative
to ASD
Formulations



Enhancement for
Challenging Target
Product Profile



Superior
Reformulations

NanoImprove Small Molecules: Combining Best-in-Class Nanotechnology, Expert Formulation and Scalable GMP Manufacturing

Proven nanotechnology enables new medicines through improved bioavailability, higher drug load and novel formulations.



Bioavailability:

World's smallest nanoparticles with largest surface area drive superior solubility with less reliance on polymers or excipients for a patient centric, simple, cost-efficient, and green formulation.



Reduced Pill Burden:

Increase drug loading for fewer, smaller pills and simplified regimen, to drive differentiation and improved patient experience (e.g. pediatric, geriatric, dysphagic).



Patient Convenience:

Alleviate food effects and restrictions to allow for alternative routes of administration leading to better initial patient acceptance and continued adherence.



Tailored Delivery Profile:

Optimized for patient groups and differentiated from current standard of care, (e.g. delayed release, long-acting implants or injections and more).



Optimized Route of Administration:

Oral, Respiratory, Long-Acting Injectables, Ophthalmic, Hydrogels, and more.

Nanoform has strong development, formulation and manufacturing capabilities, world's leading Nanotechnology particle engineering expertise, 14 development and 3 state-of-the-art GMP lines, deep analytical skillset and comprehensive formulation options at clinical development and commercial scale.

NanoImprove Large Molecules: Superior Performance of Your Peptides, Proteins and BioFormulations

Unique bio nanoparticles enable improved routes of administration with higher drug load and long-acting delivery.

Higher Drug Load

As much as 500 mg/ml API concentrations are enabled through nonaqueous suspensions.

Perfect spherical particles allow for low injection forces.

Stable, High Quality Dry Powder API Particles

Gentle processing of protein API delivers solid nano or micron-sized powders with superior quality to spray dried and lyophilization processes. Improved Stability: delivery in powder form allows for significant improvements in long-term product stability.

Optimized Formulations and Alternative Routes of Administration

Nanoforming can help deliver optimized formulations and enable alternative delivery routes.

We have experience in Long-Acting Injectables, IV-to-Subcutaneous switches, Inhalation, Ophthalmics, Hydrogels.

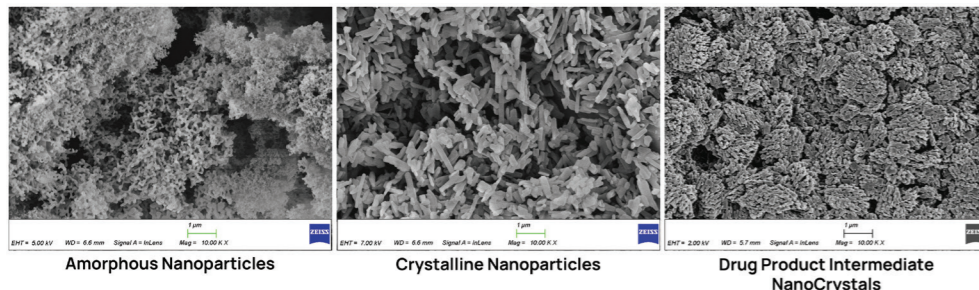
Superior Sustained Delivery to Improve Adherence

Nanoformulations can tailor sustained drug delivery profiles and reduce initial burst effects to improve differentiation or initial patient acceptance and ongoing adherence.

Our world-leading Nanotechnology Solutions are supported by our proprietary Biotechnology Platform and leading NanoFormulation experts.

Nanoforming Success Accelerated by Proprietary AI Technology STARMAP® Drives Predictions of NanoImprovement Success

Flexible Toolbox for Particle Design to Achieve Optimal Formulation Performance.



Amorphous Nanoparticles

Crystalline Nanoparticles

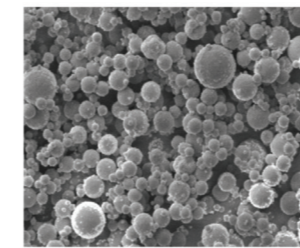
Drug Product Intermediate NanoCrystals

Nanoform Manufacturing Delivers Scalable, High Potent and Green cGMP Nanoformed API at the Right Scale

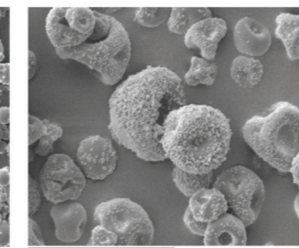
Reliable clinical and commercial scale GMP manufacturing for your small molecule API from our state-of-the-art facility in Helsinki, Finland.

NanoImprove the Performance of Your BioFormulations With NanoParticles by Design

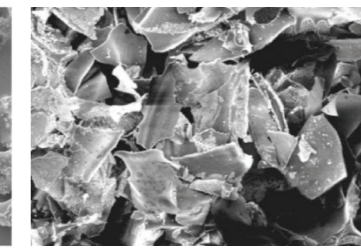
Major pharma customer's assessment of Nanoforming vs spray drying vs lyophilization of their protein



Nanoformed
Perfect spheres, highly flowable and aerodynamic, great packing and injection properties



Spray dried
Sticky, poor flowability, raisin shaped



Lyophilized / freeze dried
Flaky morphology, dry cake, no flowability

Superior flowability, aerodynamic performance, high density packing, lower injection force properties and improved material quality and stability properties vs spray drying and lyophilization

Life Cycle Management Re-Formulations: Superior Differentiation, Patient Experience and IP Protection

Nanoformed formulations provide superior product differentiation, patient experience and IP protection to extend the lifecycle value of your products and launch new value-added medicines.

Nanoform Technology is Proven with In-Vitro, In-Vivo, and Clinical study results and experience with 100 unique molecules

Oncology:

Replaced ASD formulations with nanocrystalline high drug load formulations for Enza/Apalutamide.

Life Cycle Management opportunities reduce tablet burden to single small and easy-to-swallow tablet.

Aprepitant partnership with PlusVitech for Lung Cancer to develop a regimen with fewer tablets.

Biologics:

Demonstrated, in partnership with Takeda and other companies, high concentrations for subcutaneous drug delivery with acceptable viscosity for injection.

Hydrogels:

Shown high drug load 5 x more than by nanomilling for post-surgical glioblastoma drug delivery and deep penetration across the brain parenchyma.

Respiratory:

Engineered nanoformulations of both small and large molecules with excellent performance in comparison to spray drying technologies.

FPF: >95% Nanoform vs ~50% with spray drying to deliver high drug load to the lungs.

Ophthalmics:

Multiple projects shown improved delivery including eye drop suspensions and ophthalmic inserts.

High drug load to the eye enable small implants with no requirement for mesh membranes.

Nanoform: Solid Partner for Your Projects

11 of top 20 pharma customers

World leader in Nanotechnology

Experience with 100+ Molecules

Growing Patent Portfolio across Technologies & Formulations

