

THERE'S A SCIENCE TO SUCCESS.™

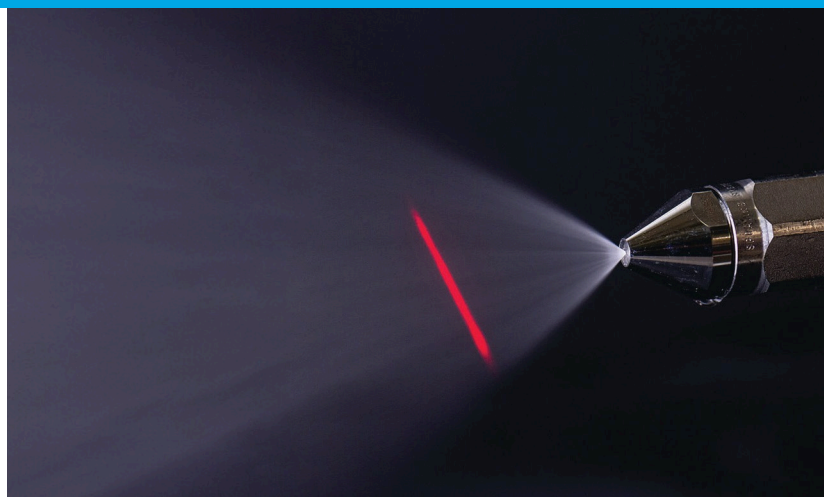
serán

www.seranbio.com

Serán BioScience: Recognized leaders in materials science and formulation development

Serán Spray Drying

A large percentage of new chemical entities exhibit poor aqueous solubility resulting in low bioavailability. Serán utilizes a wide variety of technology approaches to overcome these bioavailability challenges.



Serán provides a full range of particle engineering and formulation services including using spray drying. Serán offers spray drying solutions from early-phase development through late-phase clinical supply and, in the near future, commercial.

| DEVELOPMENT | | cGMP | |
|---|---|-------------------------------------|-------------------------------------|
| Formulation screening and preclinical supplies | Pre-clinical supplies, including preclinical and GLP tox | Phase I/II clinical supplies | Late-stage clinical supplies |
| 50 mg - 200 g | 100 g - 10 kg | 100 g - 20 kg | 10 - 100+ kg |

OUR TEAM HAS DECADES OF EXPERIENCE DEVELOPING SPRAY DRYING PROCESSES

Compatibility with organic and aqueous solvents, including alcohols (e.g., methanol), ketones (e.g., acetone), esters (e.g., ethyl acetate), dichloromethane, tetrahydrofuran, and more.

- Formulation screening with relevant process parameters for scaleup
- Custom spray dryers designed to work across a broad range of development scales.
- Development material for testing using as little as 10 mg of API.
- cGMP manufacturing from 50 mg to 100+ kg

Depend on us to solve your most difficult solubility and bioavailability challenges.

Formulation and Dosage Forms

- **Enabled formulations:** amorphous solid dispersions, milled nanocrystal delivery systems, lipid solutions
- **Powdered forms:** PiB, PiC, DP intermediates, blends, granulations
- **Tablet and capsules:** immediate and modified release
- **Multiparticulates:** pellets and minitables, inhaled particulates

Particle Engineering

- Control of particle size, morphology composition and activity
- Delivery of soluble and insoluble compounds
- Engineered particles designed for your target product profile
- HME, micronization and spray drying

Protein Particle Engineering

- Solid formulation of biologic molecules
- Custom spray dryers enable particle tunability with temperature sensitive materials
- Extensive solid-state and chemical analytical methods to ensure successful formulation



Connect & Learn More

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Serán is a world leader in drug development and manufacturing. Utilizing a foundation of physical and chemical science, Serán designs robust formulations and engineering solutions to some of the industry's toughest drug product problems.