











Hovione has developed a range of customized particle engineered APIs with superior powder properties and a suite of innovative, highly specialized Device Platforms that are able to address the challenges in your formulation development.





## Inhalation

### Particle Engineered/Customized APIs

#### Corticosteroids

PRODUCT	ROUTE OF ADMINISTRATION	CAS NUMBER	CUSTOMIZED PARTICLE SIZE	REGULATORY STATUS
Fluticasone Furoate	 Inhalation  Nasal	397864-44-7	✓	US DMF
Fluticasone Propionate	 Inhalation  Nasal  Topical	80474-14-2	✓	CEP, US DMF, JP DMF, CN DMF
Mometasone Furoate Anhydrous	 Inhalation  Nasal  Topical	83919-23-7	✓	CEP, US DMF, JP DMF
Mometasone Furoate Monohydrate	 Inhalation  Nasal	141646-00-6	✓	CEP, US DMF, JP DMF, CN DMF






#### LABA/LAMA

PRODUCT	ROUTE OF ADMINISTRATION	CAS NUMBER	CUSTOMIZED PARTICLE SIZE	REGULATORY STATUS
Umeclidinium Bromide	 Inhalation	869113-09-7	✓	DEV, TECH PACK
Vilanterol Trifenatate	 Inhalation	503070-58-4	✓	GMP, TECH PACK
Glycopyrronium Bromide	 Inhalation	51186-83-5	✓	US DMF
Salmeterol Xinafoate	 Inhalation	94749-08-3	✓	CEP, US DMF

### Formulation Services

- Carrier-based, composite and carrier-free formulation development
- Generic deformation and formulation services
- Novel formulation development
- Spray Drying, Jet Milling and Wet Polishing particle engineering capabilities
- API particle customization to tailor formulation performance
- Dry powder inhalation drug product manufacturing:
  - High and low shear powder blending
  - Capsule, reservoir, and blister filling
- Biorelevant analytical formulation testing
- Integrated API, excipient, blending, device and analytical formulation capabilities

### Device Platforms

DEVICE	ROUTE OF ADMINISTRATION	TYPE	DOSING	DOSE RANGE	APPLICATIONS
Sunriser®	 Inhalation	Capsule	Multi-use	Up to 50mg	Asthma, COPD, Cystic Fibrosis and more
TwinCaps® DPI	 Inhalation	Reservoir	Single-use	Up to 2 x 30mg	Anti-virals, vaccines, rescue therapies and more
Large Dose DPIs	 Inhalation	Reservoir	Single-use	Up to 8 x 50mg	Antibiotics, biologics, anti-virals and more
PowdAir® DPI	 Inhalation	Capsule	Reusable	Up to 50mg	Asthma, COPD, Cystic Fibrosis and more
Papillon DPI	 Inhalation	Blister	Reusable	Up to 50mg	Asthma, COPD, Cystic Fibrosis and more

- Available for integrated formulation-device development, licensing, supply and customization
- Active collaborations with device partners to bring the right dry powder inhalation device for every formulation

From feasibility to commercial











Contact our experts today to know how to integrate API, excipient, blending, device and analytical formulation capabilities.

## Security of supply








Hovione provides the peace of mind of a high-quality manufacturer who is a founding member of Rx-360 and has an unblemished regulatory track record.

## Oral, Injectable, Topical and Ophthalmic

### Antibiotics

PRODUCT	ROUTE OF ADMINISTRATION	CAS NUMBER	CUSTOMIZED PARTICLE SIZE	REGULATORY STATUS
Doxycycline Hyclate	 Oral  Injectable	24390-14-5	✓	CEP, US DMF, JP DMF
Doxycycline Monohydrate	 Oral	17086-28-1	✓	CEP, US DMF
Minocycline Base	 Oral  Injectable	10118-90-8	✓	US DMF
Minocycline Hydrochloride	 Oral  Injectable  Topical	13614-98-7	✓	CEP, US DMF, JP DMF, CN DMF

### Corticosteroids

PRODUCT	ROUTE OF ADMINISTRATION	CAS NUMBER	CUSTOMIZED PARTICLE SIZE	REGULATORY STATUS
Betamethasone Acetate	 Ophthalmic  Injectable	987-24-6		US DMF
Betamethasone Disodium Phosphate	 Ophthalmic  Injectable  Topical	151-73-5		US DMF, JP DMF
Halobetasol Propionate	 Topical	66852-54-8	✓	US DMF
Hydrocortisone Aceponate	 Topical	74050-20-7	✓	ASMF & VMF

### Antiparasitic

PRODUCT	ROUTE OF ADMINISTRATION	CAS NUMBER	CUSTOMIZED PARTICLE SIZE	REGULATORY STATUS
Ivermectin Human Grade	 Oral  Topical	70288-86-7		CEP, US DMF

### Excipients

PRODUCT	ROUTE OF ADMINISTRATION	CAS NUMBER	CUSTOMIZED PARTICLE SIZE	REGULATORY STATUS
DTPA (Pentetic Acid)	 Injectable	67-43-6		GMP, TECH PACK

- Custom high-purity, cGMP bio pharmaceutical excipients and bioprocessing chemicals
- Dispersome®

### Drug Delivery Expertise

- Solubility Enhancement Platforms:
  - ASD-HIPROS, Dispersome®
- Sustained Release
- Ophthalmic
- Inhalation and Nasal

### Manufacturing Services

- Integrated offer: from chemical synthesis to drug product manufacturing
- Bottom-up and Top-down particle engineering by:
  - Spray drying, Spray congealing, Hot melt extrusion, Co-precipitation, Crystallization and Milling
- Batch tableting and precision capsule filling
- Continuous Tableting

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