

# CONTRACT MANUFACTURING CAPABILITIES



**INTERPHARMA  
PRAHA, a.s.**



**IPP offers free chemical capacity in new multipurpose GMP API unit and new multipurpose GMP kilo plant for contract manufacturing.**

**We offer expertise in Custom Development & Manufacturing of active pharmaceutical ingredients (API), intermediate development with services in:**

#### **Process & Chemical Development**

- Synthetic route investigation
- Process optimization
- Process scale up and implementation

#### **Analytical Development**

- Method development
- Method transfer and validation

#### **Pilot Manufacturing**

- Scale up of processes
- GMP production of clinical trial materials



**IPP development and manufacturing expertise includes series of chemical transformations:**

#### **C-C bonds reactions**

- Grignard reaction
- Suzuki reaction
- Heck reaction
- Kumada reaction

#### **Metal organic Reaction**

- Boronic acids
- Grignard reaction
- Lithium-Halogen exchange

#### **C-Heteroatom bond Forming reactions**

- Alkylations
- Acetylation
- Reductive amination
- Etherification
- Ullmann reaction
- Buchwald-Hartwig reaction

#### **Aromatic Ring Substitution**

- Iodination
- Bromination
- Chlorination
- Boronation (Borylation)

#### **Chiral chemistry**

- Chiral (racemic) resolutions using diastereomeric compounds
- Diastereoselective synthesis

#### **Functional Group Transformation**

- Alcoholysis
- Aminolysis
- Amidation
- Ritter reaction
- Esterification
- Transesterification

#### **Reaction with special chemicals**

- Halogens (iodine, bromine, chlorine)
- Thionyl chloride
- Boranes

#### **Cyclization**

- Heteroatom cyclizations
- Robinson's cyclization

#### **Reductions and oxidations**

- Heterogeneous catalysis (palladium, platinum, nickel)
- Homogenous catalysis
- Reductive amination
- Reduction of nitro group
- Epoxidation

#### **Special technologies and capabilities:**

- Hydrogenation up to 30 bars in stainless steel, Hastelloy or glass lined reactors, 1-2000 L
- Spray drying in clean rooms (<100,000 particles/m<sup>3</sup>.hour) with capacity 20kg of water/hour
- Membrane filtration (reverse osmosis, nanofiltration, microfiltration, depyrogenation)
- Special purification (crystallization, extraction, adsorption, chromatography)
- Organometallic chemistry (reaction in low temperature reactor)

#### **Application field:**

- Pharmaceutical intermediates and API
- Custom synthesis of chemical specialties
- Nutraceuticals, formulated food supplements, cosmetics