Millipore®
CTDMO Services

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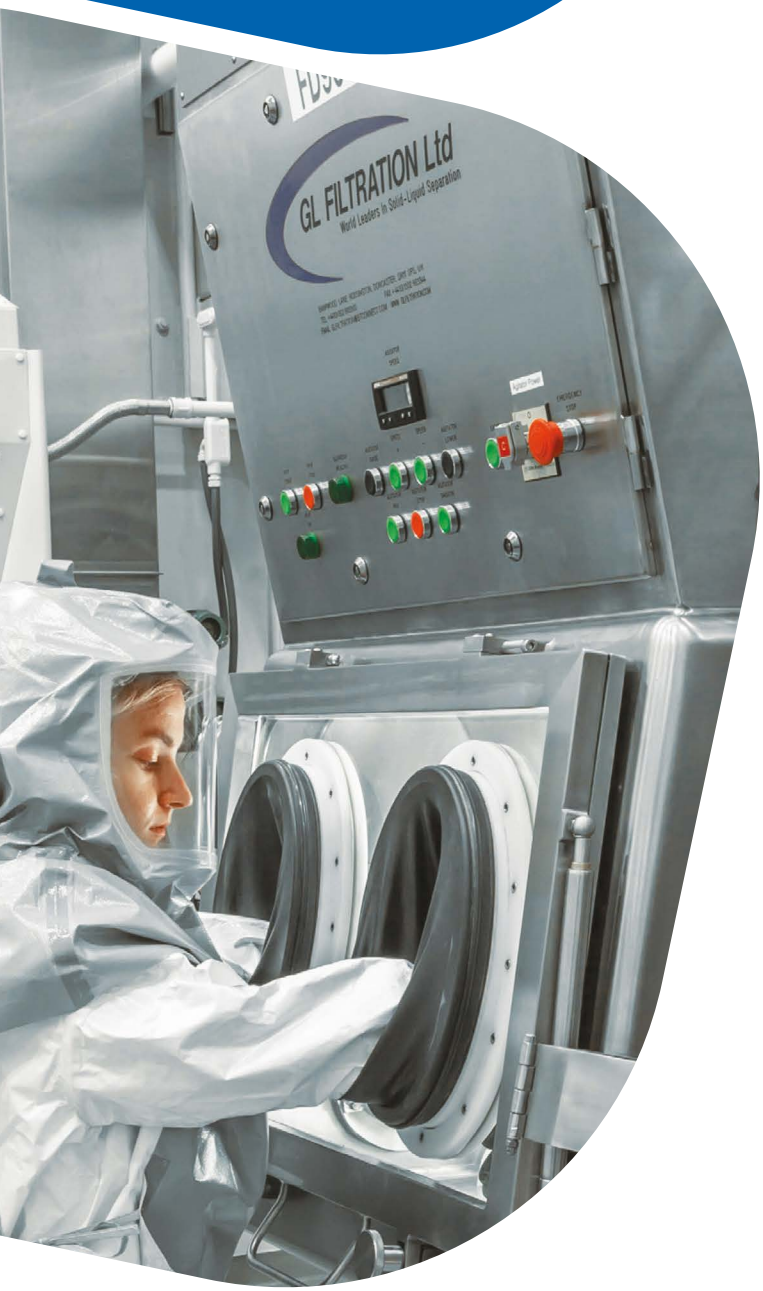


Highly Potent and Complex API Contract Manufacturing

Announcing the opening of the world's largest single nanogram containment facility in 2022

At Madison/Verona site, we are committed to producing your HPAPIs, cytotoxic materials and linker-payloads faster, more efficiently and without compromise to safety. Our new site expansion gives you access to the world's largest single nanogram OEL containment facility. As one of the first facilities to receive SafeBridge® certification for the safe handling of Highly Potent APIs (HPAPIs), our Madison/Verona site has been your trusted partner for the development and manufacturing of these compounds for over 30 years, and in 2020, we received further certification by SafeBridge® for Industry Leadership in HPAPI handling. With a wide range of scales, we have the expertise for your complex and high potent API project.

Manufacturing Capabilities

QTY	Equipment	Capacity	Temp Range
7	HPAPI Kilo Labs: Single ng OEL containment	g to kg scale	-75 to +190 °C
6	HPAPI Kilo Labs: Containment down to 30 ng/m³	g to kg scale	-75 to +190 °C
4	Potent Kilo Labs: Containment down to 1 µg/m³	g to kg scale	-75 to +190 °C
3	HPAPI Pilot Plants: Containment down to 30 ng/m³	120–800 L 3–25 kg batch	-20 to +180 °C
2	Potent Production Plants: Containment down to 1 µg/m³	2,000–4,000 L 50–400 kg batch	-80 to +180 °C

Industry Leadership for Single Nanogram containment

Our six new state-of-the-art high containment kilo labs were built with single-digit nanogram containment in mind and exhibit such features as:

- Extensive, integrated, multi-operation isolator technology to maintain full containment through the entire API synthesis, purification, and isolation
- Mechanical spaces to allow for all supporting devices to be kept outside of the labs

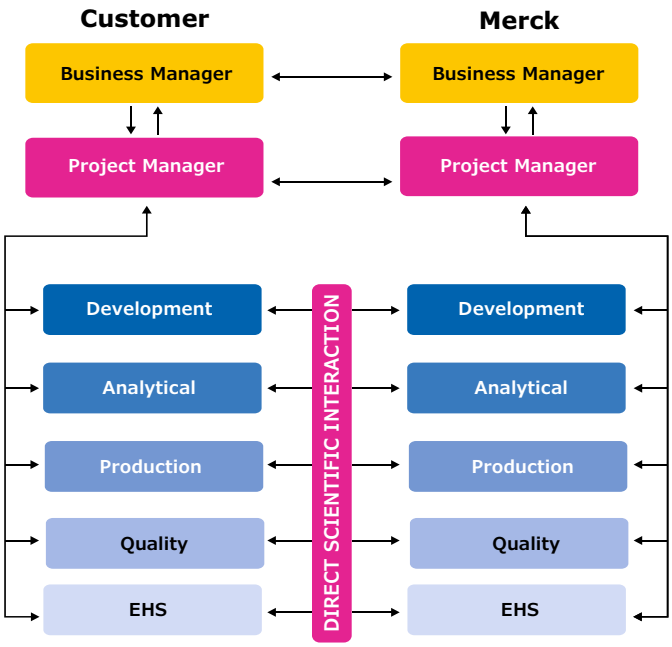
Containment and Safety

Purpose built, the fully validated GMP sites are certified by SafeBridge® and designed to follow the most stringent criteria for highly active compound manufacturing and engineered for containment and isolation of potent compounds.

- Differential room pressure designed for containment (with monitoring and verification)
- Airlocks/vestibules surrounding manufacturing/lab spaces
- HEPA filtered single pass air
- Filtration/capture of contaminants, with safe-change filters

Project Management

From evaluation to execution, our dedicated project managers focus on direct customer communication and coordinate multi-disciplinary teams, international site activities and timelines.



Process Development

- 2 Sites in Madison/6 labs/19 hoods
- 4 Segregated high potent compound capable labs
- 3 additional single-digit nanogram containment labs opening in Q4 2022
- Phase appropriate development to support pre-clinical through commercial activities
- Specialization in complex chemistry, purification, and isolation

Analytical Development and Quality Control

Our supporting services include developing robust analytical methodology platforms.

- Raw material, intermediate and final product testing methods
- Impurity identification and characterization
- Analytical method development, qualification, and validation
- Stability testing (ICH guidelines)
- Broad range of instrumentation including XPRD, Particle Size, and ICP-MS

Quality Management and Compliance

Our offer includes, extensive regulatory expertise in quality, compliance and regulatory.

- ICH Q7 cGMP facility
- ISO 13485 Certified
- Active DMFs filed in over 35 countries
- Ability to support customer development activities:
  - Preparation of regulatory filings (CMC sections)
  - Vendor audits
  - Control documentation and testing

Starting Materials and Key Intermediates

We use an established supply chain and global network of contract manufacturing sites to advance customers' therapies from clinic to commercial manufacture by providing critical starting materials, intermediates, and GMP reagents.

Bio- and Antibody-Drug Conjugates (ADCs)

We are a leading expert in bioconjugation services. Madison's expertise in the production of linker and payload technology combined with our clinical and commercial ADC facilities in St. Louis (MO) enable us to offer a comprehensive solution for your supply chain, including our mAbs CDTMO services, offering process development and cGMP production of monoclonal antibodies for clinical supplies.

For additional information, please visit
SigmaAldrich.com services/contract-manufacturing/high-potent-apis
To place an order or receive technical assistance, please visit
SigmaAldrich.com/services/contact-safc

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