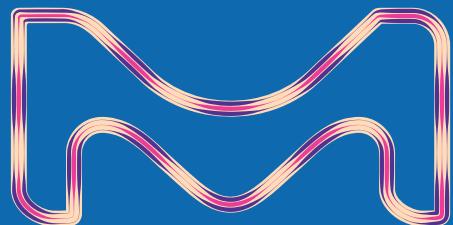


Supply Chain

In Times of

Disruption & Disease

Chris Ross
Head of Integrated Supply Chain Operations
MilliporeSigma



The life science business of Merck KGaA,
Darmstadt, Germany operates as MilliporeSigma
in the U.S. and Canada.

Millipore
SIGMA



The Life Science tools business
of Merck KGaA, Darmstadt, Germany



1668
founded



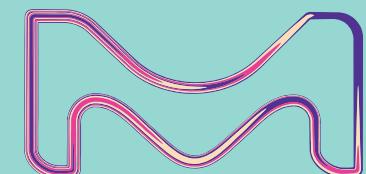
\$7.5 bn
annual
sales

70%
Family owned

Healthcare
Performance Materials
Life Science



22,000
global
employees



Our sTrenGTH in fighting this pandemic
means working together, openly and rapidly,
as a GLoBaL FaMILY

Our guiding principles

1

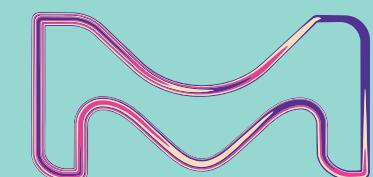
Ensure the safety and
well-being of our employees
and their families

2

Play a positive role in
public health

3

Sustain our business
well beyond the crisis



THE enGIne BEHIND THE SOLUTION in times of crisis and beyond

We are dedicated to helping solve the toughest problems and accelerating access to health — that's why we're driven to aid in the response to COVID-19.

Leveraging our key strengths



OUR PEOPLE

22,000+ employees helping to solve the toughest problems in life science



OUR PRODUCTS

Delivering 150+ essential products



OUR RESPONSE

Working with the global community in times of crisis and stability



OUR GLOBAL PRESENCE

Supply chain expertise with 100+ distribution points, speeding access for research and development teams around the world

**MILLIPORE
SIGMA**





OUR PeOPLe

22,000+
employees are the backbone of our organization. Their safety and wellbeing remains our top priority; creating a safe workplace ensures our ability to manufacture & distribute solutions driving the COVID-19 response.

SAFETY

We've implemented measures to keep our employees safe while continuing to power the scientific community

- 1 Site de-densification and social distancing
- 2 Additional precautionary personal protective equipment
- 3 Regimented cleaning schedules at all locations

DIGITAL SOLUTIONS

Leveraging technology to collaborate with and support those responding to COVID-19

- 1 Dedicated customer & technical service teams
- 2 Virtual customer meetings
- 3 Expanded webinars and online trainings



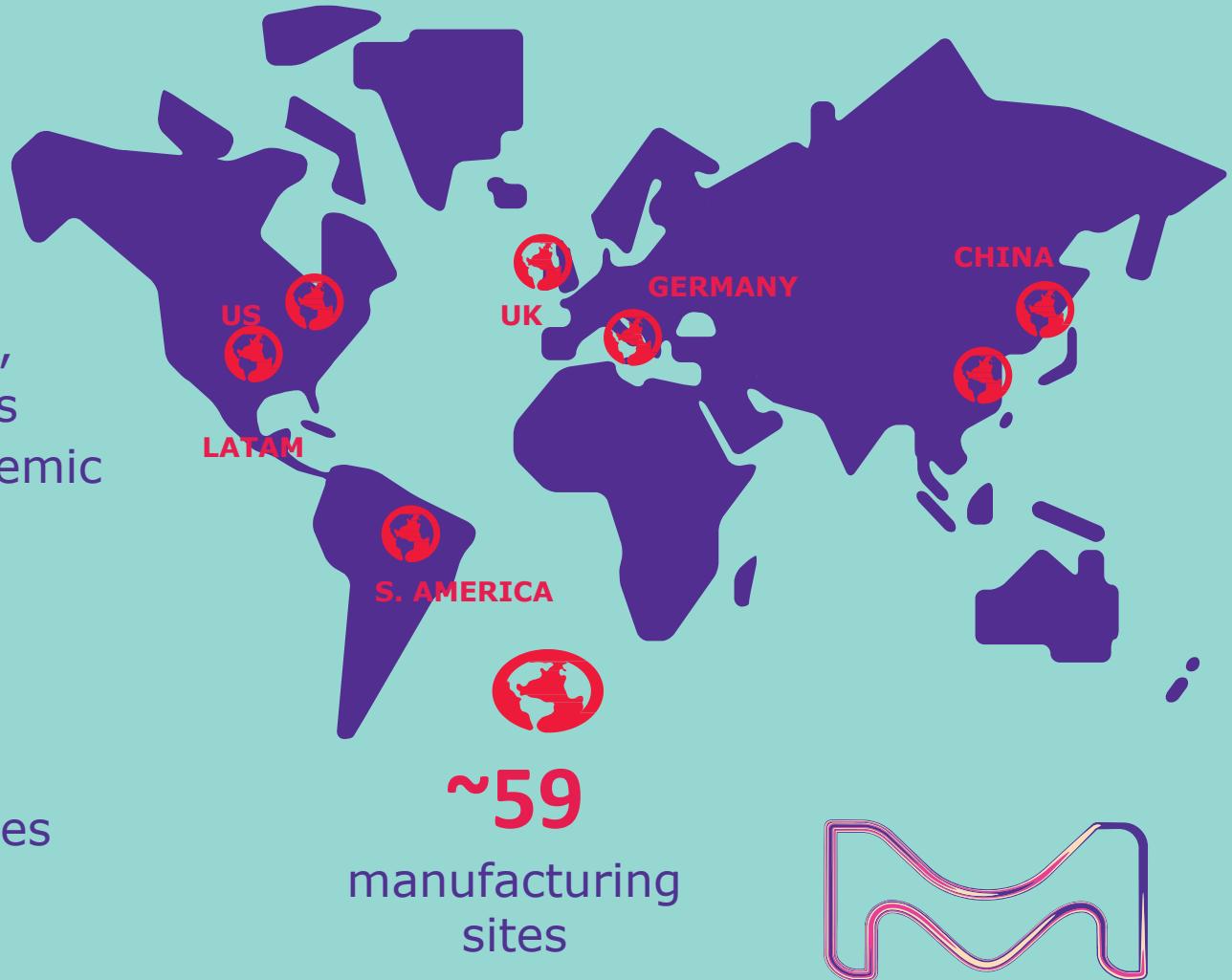
Our RoLe In PUBLIC HeaLTH

We Manufacture & Supply...

Products & raw materials utilized for the research and development of vaccines, diagnostic tests, and potential therapeutics by customers fighting the COVID-19 pandemic

...Serving

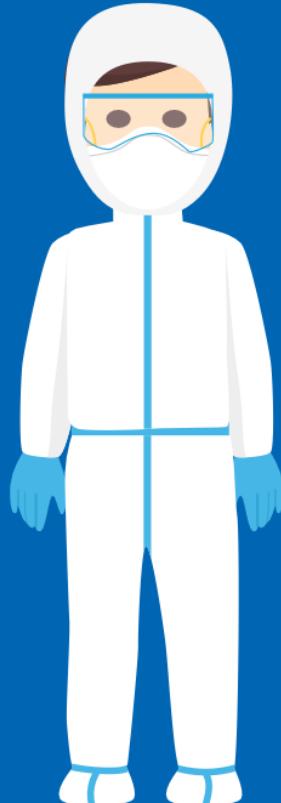
- Academic labs
- Biopharmaceutical companies
- Industries like food & beverage companies





OUR ReSPOSe

Responsibility is one of our core values, and we're responding in more ways than our products and services.



We're helping solve the toughest problems by supplying key products for COVID-19 response to:

18
MAbs &
plasma
products

25
Testing
Solutions

46
Vaccine
programs

4
Antiviral
programs

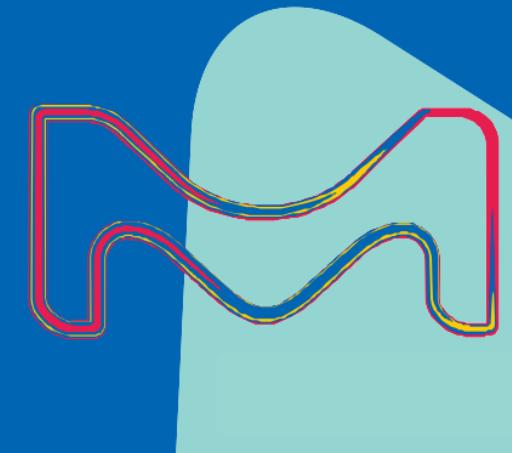
We're virtually connecting students with at-home, hands-on science lessons:

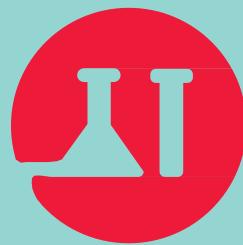
- At-home Curiosity Labs™ experiments
- Supporting expansion of STEM e-learning by our NGO partners



We're supporting ongoing efforts with donations beyond our portfolio contributions

- Personal Protective Equipment for medical aid and frontline health care workers
- Products to local institutions and in-vitro diagnostic manufacturers in China





OUR PRODUCTS

Each of these areas will be critical in slowing the progression of COVID-19 and ultimately protecting the world in the future

VIRUS DETECTION

- Two key diagnostic technologies emerged critical in COVID-19 response:
- RT-PCR molecular diagnostics involved in the diagnosis of COVID-19:
 - Patient Sample Collection (i.e guanidine thiocyanate)
 - RNA Extraction (i.e. proteinase K)
 - RNA Amplification/Detection (i.e. oligo primers & fluorescent probes)
- Serological: test for presence of antibodies:
 - Lateral flow test strip (i.e. Hi-flow membranes)
 - Detection reagents (i.e. Estapor beads)
 - General Purpose Reagents (i.e. probumin)

VIRUS CHARACTERIZATION

- Effective vaccines and therapies start with reliable virus characterization. We offer one of the largest portfolios of biologic reagents and hardware
- Understanding viral attachment and entry, viral genomics, or viral proteomics requires the highest quality reagents
- Consisting of several platforms that include DNA, Inactivated, Live Attenuated Virus, Viral Vector, Protein Subunit and mRNA

In the past 30 years
every drug approved by
the US FDA included
our products

VACCINE & THERAPY PRODUCTION

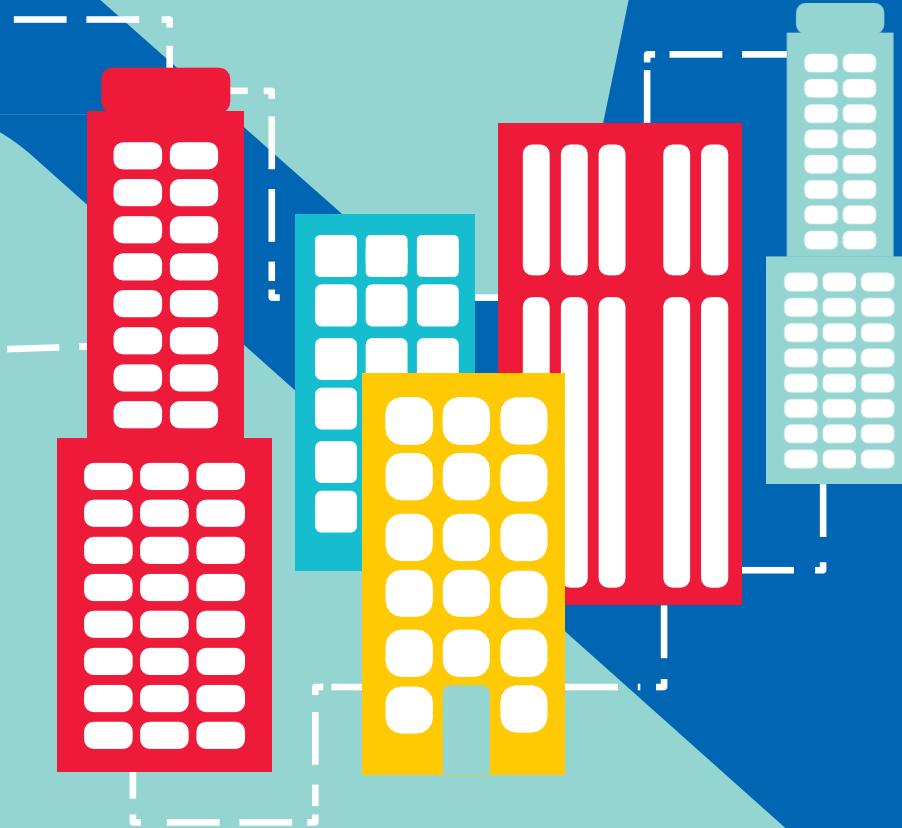
- Cell Culture Media
- Clarification
- DNA digestion
- Tangential flow filtration,
- Chromatography
- Sterile filtration
- Single-Use

59

MANUFACTURING
SITES

100+

DISTRIBUTION
CENTERS



OUR
GLOBaL PreSeNce



OUR
COVID-19
GLOBAL TASKFORCE

is actively monitoring and solving potential disruptions, so our global supply chain continues to meet critical customer needs

- Increasing stock and activating secondary suppliers
 - Dedicated import and export teams to speed the time of receipt and delivery
 - Business continuity plans in place for pandemic scenarios ensuring supply chain security

Proteinase K (ProK) Journey

What is ProK?

ProK is an **enzyme used in molecular biology to efficiently isolate native, undamaged DNA & RNA.**

How does it work?

It breaks down proteins and quickly inactivates other enzymes known as nucleases to purify genetic material.

Important component in **molecular diagnostic kits**

Originates from fungus

Product of a truly **global supply chain**



Finished products make multiple crossings of international borders on three continents before reaching the labs where clinical testing occurs. With such global transitions in mind, our success in fighting this pandemic today relies on our ability to share information and move product seamlessly across national borders.

This life science tool is **instrumental to current research on COVID-19 and the pursuit of effective diagnostic** for the disease.

