The World’s Increasing Unsatisfiable & Unsustainable Appetite for Meat: Solutions & an Unlikely Career Journey from Microbiology to Clean Meat

The University of Chicago

Shou Wong, Ph.D
Head of Technology Scouting – External Partnerships & Innovation
Silicon Valley Innovation Hub
Group Strategy & Transformation

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three things

1. Merck KGaA? Who?
2. World’s Appetite for Meat
3. Career Journey / Suggestions
Watch our movie

we are a
vibrant
science and
technology
company
In 1887, Merck KGaA, Darmstadt, Germany opened its own office in New York, which gave rise to the subsidiary Merck & Co., Inc., Kenilworth, NJ three years later. As a result of World War I, this subsidiary was expropriated in 1917 and has been an independent company ever since.

Merck KGaA, Darmstadt, Germany – the original holds the global rights to the Merck name and brand.

Exceptions are Canada & the United States, where we operate as EMD Serono, MilliporeSigma and EMD Performance Materials.
We unite the best of two worlds

Merck KGaA, Darmstadt, Germany

Merck Family
Equity interest 70.3%
Family-owned for 13 generations

Total capital 100%

Shareholders
Share capital 29.7%
Publicly traded since 1995
DAX constituent since 2007
Friedrich Jacob Merck lays the foundation for our company

1668

Start of Liquid Crystal Research

1827

Immunology Research starts with a focus on cancer therapy

1904

Entry into targeted cancer therapies

1967

Acquisition of Millipore

1987

Regulatory approvals for drugs in the areas of cancer and chronic progressive diseases of the immune system

1990

Opening of the new Innovation Center in Darmstadt

2003

Opening of the new Innovation Center in Shanghai

2007

Acquisition of Sigma-Aldrich

2010

Acquisitions of Versum Materials & Intermolecular

2015

Start of Bio-Electronics Research

2017

Start of Cellular Agriculture Program

2019

350th anniversary

2020

Acquistion of AmpTEC

2021

Pritzker School of Molecular Engineering Industry Seminar Series | The University of Chicago | April 8, 2021
58,127 Employees worldwide

66 Countries

Founded 1668

17.5 Sales (€ billion)

2.3 R&D (€ billion)
We are known as **Merck** internationally except for the United States and Canada, where we operate as **EMD Serono** in the biopharmaceutical business, **MilliporeSigma** in the life science business and **EMD Electronics** in the high-tech materials business.

**Healthcare**
- Pioneer in cancer treatment
- Advancing care in immunology
- Global market leader in fertility treatments
- Robust R&D pipeline

**Life science**
- Trusted supplier and partner for the scientific community
- From research to large scale production with >300,000 products
- Novel technologies and world-class solutions driving discoveries

**Electronics**
- Innovations to change the way we access, store, process and display data
- Enabler of new generations of electronic products for our everyday lives
- Supplier of innovative, functional and decorative pigments
Technology & Market Trends

- Healthcare
- Life Science
- Electronics

- Digital Healthcare
- Precision Medicine
- Commercial Lab
- Future Food
- Autonomous Driving
- 5G
- IoT

- Gene Editing & Novel Modalities
- Novel Computing

- Artificial Intelligence
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By 2050, the world’s population will reach 10 billion
45% more energy
50% more water
The world will need... 50% more food
How can we feed the planet without destroying it?

Can you imagine a future where we won’t eat animals...

...but still eat meat?
Eat healthy meat without guilt

Innovation Field: Clean Meat

Ethically produced

Environmentally friendly goals
- 96% less greenhouse emissions
- 92% less land and water usage

Supports better health
- No antibiotic use
- Pathogen and parasite free
- Allows usage of healthy additives, such as vitamins
Meeting critical technology challenges...

Meat producer cell lines  Animal component-free media  Industrial bioreactors  Edible scaffolds

... with our existing Expertise

**Life Science:** cell line development, upstream and downstream bioprocessing

**Healthcare:** bio-pharmaceutical manufacturing

Performance Materials & Life Science: advanced materials & tissue engineering
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"You can't connect the dots looking forward; you can only connect them looking backwards. So you have to trust that the dots will somehow connect in your future. You have to trust in something — your gut, destiny, life, karma, whatever...

Steve Jobs, Commencement Address 2005 at Stanford
Science is at the heart of everything we do.
“Often the most exciting breakthroughs are reached when people with different backgrounds join forces. We are inviting scientists from all over the world to participate in our open innovation program to make great things happen together”

Ulrich Betz
Vice President Innovation
Open Innovation

Inviting scientists from all over the world to participate to make great things happen together

https://www.merckgroup.com/en/research/open-innovation.html#anchor-1
INNOVATION SUMMER SCHOOL

A unique opportunity for brilliant international students: Learn about intrapreneurship and grow an idea into a viable innovation concept!

12 experienced PhD & Master students

3 Months

3 Innovation projects

Ideation sprints

3 teams

MIC facilitators
The brightest students from all over the world meet at our company headquarters to learn from professionals, network, develop business plans and win the 20,000 EUR Innovation Cup.