

Science recently learned ~50% of medications work through GPCR signaling.

But, 99% of existing drugs were discovered by luck: trial, error, observation and testing, over years.



Imagine a world in which we could target-design medications to signal through specific GPCR channels.
It would change medicine.



OH₂ Laboratories
Re-engineering Drug Discovery

The ability to produce stable water-soluble protein replicants is a fundamental new tool that opens many doors:

Drug Discovery

Our technology provides a critical revitalization of drying pharma pipelines: (i) Addresses compounds with poor solubility (over 40% of drugs) offering increased efficacy and faster, cheaper development. (ii) Enables novel drug candidates for GPCR-mediated diseases:

*Examples include:

Alzheimer's (GPR3)	Parkinson's (GPCR 37)	Prostate cancer (GPR68/OGR1)
Arteriosclerosis (GPRS 176)	Asthma (CCR3.CXCR2)	Cancer metastasis (CXCR4)
Colon cancer (MAS1)	Ovarian Cancer (OGR1)	Leukemia (P2Y8/P2 R Y8)
Diabetes (GPCR 21)	Autism (GPCR 63)	Bipolar disorder (GPRS 78)
Osteoarthritis (GPR22)	Lung cancer (GPR87)	Breast Cancer (CXCR4)

(Plus over 700 others and the list grows almost daily.)

Research Tools - Provide our synthetic GPCR^{QTY} materials, duplicating native GPCR functionality in a water-soluble form to research laboratories.

Diagnostics - Water-soluble GPCR^{QTY} materials maintain ligand binding ability to specific antigens/receptors, providing a new class of novel, low-cost diagnostics.

mAB-Similar Products - New molecular therapeutics: (i) Target-designed to be similar to monoclonal antibodies, but easier to produce; (ii) Engineering mAb^{QTY} to reduce mAb aggregation and increase long-term storage.

Autoimmune/Allergy Therapy - Use GPCR^{QTY} as decoy treatment (similar to Enbrel/Etanercept), theoretically for any disease or condition associated with GPCR signaling.

Viral Therapeutics - Use Receptors^{QTY} to trap viruses including: HIV, Ebola, Marburg & Lassa - for rapid reduction of viral loads.

Molecular Sensors - Use Receptors^{QTY} to create ultra-sensitive bionic detectors. (e.g. a chip-based bionic nose.)

Company Structure

OH₂ is an IP development and holding company, structured to form subsidiaries to monetize the benefits our technologies bring to a range of fields:

- Drug Discovery
- Research Tools
- Diagnostics
- mAB-Similar Products
- Autoimmune/Allergy Therapy
- Viral Therapeutics
- Molecular Sensors

Market Size (Pharma only)

GPCR-related pharma is ~\$425B/year globally. Our technology will grow the market considerably.

Our Scientists

Shuguang Zhang, Ph.D - Lead Investigator

MIT Researcher for 26 years
160 papers, 36 patents issued and pending
Last company (3DMatrix) valued at \$800M

Prof. Robert Langer

MIT Professor for 36 years
1,250+ articles. 220+ major awards
1,030+ patents. 250+ licenses

Alexander Rich, M.D.

MIT Professor for 56 years
550+ articles. Many awards and honors

David Jin, M.D.

Practicing Oncologist and Researcher
2012 Top Chief Medical Officer in America
2014 Leading Physicians in the World

Our Board

David Levy, Ph.D - General Manager and Chairman
Marc Rioult, Ph.D - Man. Director, 3DMatrix US & Europe
Kevin Munnely, Ph.D - President and CEO, Gen9
Steve Yang, Ph.D. - Director, Sentilia

For more information contact David Levy

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