

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.**



**OH<sub>2</sub> 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<sup>QTY</sup> materials, duplicating native GPCR functionality in a water-soluble form to research laboratories.

**Diagnostics** - Water-soluble GPCR<sup>QTY</sup> 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<sup>QTY</sup> to reduce mAb aggregation and increase long-term storage.

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

**Viral Therapeutics** - Use Receptors<sup>QTY</sup> to trap viruses including: HIV, Ebola, Marburg & Lassa - for rapid reduction of viral loads.

**Molecular Sensors** - Use Receptors<sup>QTY</sup> to create ultra-sensitive bionic detectors. (e.g. a chip-based bionic nose.)

### Company Structure

OH<sub>2</sub> 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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