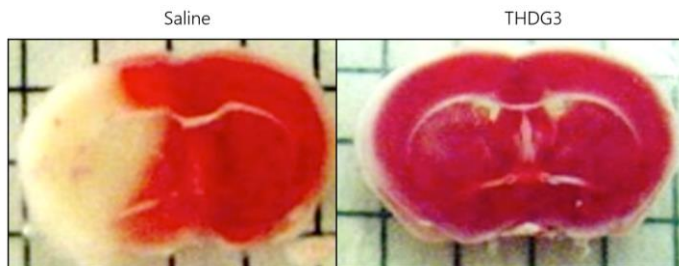
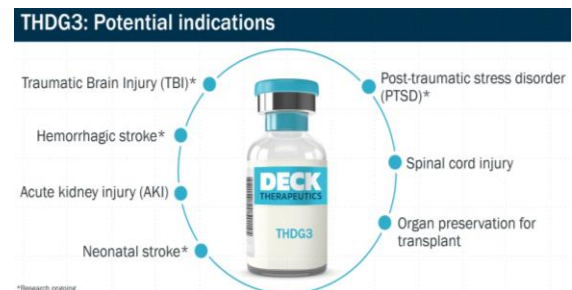


**SUMMARY:** THDG3 represents a novel, patent protected omega-3 diglyceride emulsion developed by Dr. Deckelbaum's laboratory at Columbia University. Acute injection of THDG3 emulsion following stroke leads to a marked reduction in brain tissue death (up to 90%, demonstrated in 6 rodent models), with associated preservation and recovery of both short and long term neurofunctional outcomes. Due to the high risk profile and short window of administration, less than 8% of stroke patients receive treatment with t-PA, the current standard of treatment for stroke. DeckTherapeutics is currently developing THDG3 emulsion as a drug candidate for standard emergency treatment for stroke, a global unmet need, with phase 2a trials planned in 2021.

**TECHNOLOGY & INDICATIONS:** THDG3 efficacy is based on multiple molecular mechanisms of action in preventing cell death and ischemic organ injury. Apart from stroke, acute administration of omega-3s has also demonstrated significant efficacy in treatment of traumatic brain injury (TBI). Currently there are no FDA approved drugs for TBI treatment despite the high annual economic costs (\$76B<sup>1</sup>). Additional potential secondary indications of THDG3 include hemorrhagic stroke, acute renal failure, spinal cord injury and preservation of organs for human transplantation.



Mouse brain showing significantly reduced infarct size (tissue in white) after treatment with THDG3



**STRATEGIC OPPORTUNITY:** Stroke is the 4<sup>th</sup> leading cause of death in the United States with approximately 800,000 occurrences each year, and it is the leading cause of long term disability<sup>2</sup>. 87% of strokes are ischemic, with over 140,000 instances resulting in death. Direct and indirect medical costs related to stroke are currently over \$71B and \$31B per year, and are projected to be over \$184B and \$56B, respectively, by 2030<sup>2</sup>.

There are significant limitations to t-PA, the current standard of treatment for stroke. These include a short window of administration (within 4 hours) and the need for expensive CT/MRI imaging prior to treatment. t-PA administration also carries risk of uncontrolled bleeding, and frequently fails to break up large clots. t-PA also has a rapid loss of activity and efficacy once injected. As a result, less than 8% ischemic stroke patients receive treatment with t-PA of which half or less benefit from treatment.

**COMPETITIVE ADVANTAGE:** Given the enormous unmet need highlighted above, there is a strong global interest in developing new drug candidates for acute ischemic stroke. The main competitive advantages of THDG3 for stroke include:

- Pleiotropic effects: Unlike other drug candidates, omega-3s have multiple mechanisms of action to prevent cell death and provide neuroprotection.

<sup>1</sup> <https://www.cdc.gov/traumaticbraininjury/severe.html>

<sup>2</sup> Bruce et al. Stroke. 2013;44:-2361-2375

- Excellent safety profile: Omega-3s have a significantly higher safety profile when administered acutely. Studies in Dr Deckelbaum's lab show no increased bleeding side effects, potentially eradicating the need of costly and time consuming CT/MRI scans required prior to t-PA administration. This dramatically expands the pool of stroke patients eligible for treatment with THDG3.
- Longer treatment window: Acute injection of omega-3s have demonstrated significant efficacy up to 6 hours after stroke in rodent models. A wider window is expected in humans.

## INVESTMENT OPPORTUNITY:

THDG3 emulsion being developed as a therapeutic agent has the potential to become the gold standard of treatment for stroke patients, representing a significant global market opportunity (Total Addressable Market of \$7B in US alone). DeckTherapeutics is currently closing a financing of US\$5M to complete 18 months of additional pre-clinical safety and efficacy studies of THDG3 and expand its intellectual property position.

## LEADERSHIP TEAM

Dr. Richard Deckelbaum: MD, CM, FRCPC

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Dr Richard Deckelbaum is the Director of the Institute of Human Nutrition, a Professor of Pediatrics and of Epidemiology, and a Robert R. Williams Professor of Nutrition at the Columbia University. Dr Deckelbaum has published over 350 research and other publications, co-edited a number of books, chaired task forces for the American Heart Association, the European Atherosclerosis Society, the Institute of Medicine, the March of Dimes, and has served on advisory committees of the National Institutes of Health, RAND Corporation, and of the U.S.A. National Academies of Science. He has also held advisory roles relating to clinical applications of lipids with several major nutrition and pharmaceutical companies. He served on the Food and Nutrition Board of the National Academies of Science, and is a Senior Fellow of the Synergos Institute. Dr Deckelbaum's laboratory has been funded for over twenty five years by NIH grants focusing on triglyceride emulsions, lipoprotein metabolism, and lipid metabolism in-vitro and in-vivo. A recent application from Dr Deckelbaum's lab to the National Institutes of Health (NIH) based on mechanisms of acute omega-3 neuroprotection after stroke was reviewed by the stroke study section and rated with an outstanding score on the 2<sup>nd</sup> percentile.

Suman Lal

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Suman has more than 8 years of experience in basic and translational research (personalized medicine, stem cells, and pharmacogenetics) and 5 years of sales & business development in high technology in life sciences. Suman holds an MD in clinical medicine, an MS in genetics, a PhD in oncology, and attended MIT as a Sloan Fellow where he received his MBA focused on technology innovation. In 2013, Suman co-founded a start-up studio between New York and Singapore that spun off 5 technology and business model innovation based companies in the areas of beauty-tech, preventive cardiology and prescribed nutrition using a new model for early stage venture creation. Most recently, Suman was the CEO of Mirakel, a company focused on developing new technologies in the area of cosmetics & hair care.

## ADVISORY BOARD

Glenn Mattes Sr. level pharma exec with 30+ years of industry experience	Mitchel Elkind MD, MPH Stroke neurologist, Clinical trials	Chezy Barenholz, PhD Lipid biochemist, Start-up successes++	Yvon Carpentier, MD Lipid emulsion specialist, International opinion leader	Larry Deckelbaum, MD Cardiologist, Big pharma/new drug discovery & clinical trials
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