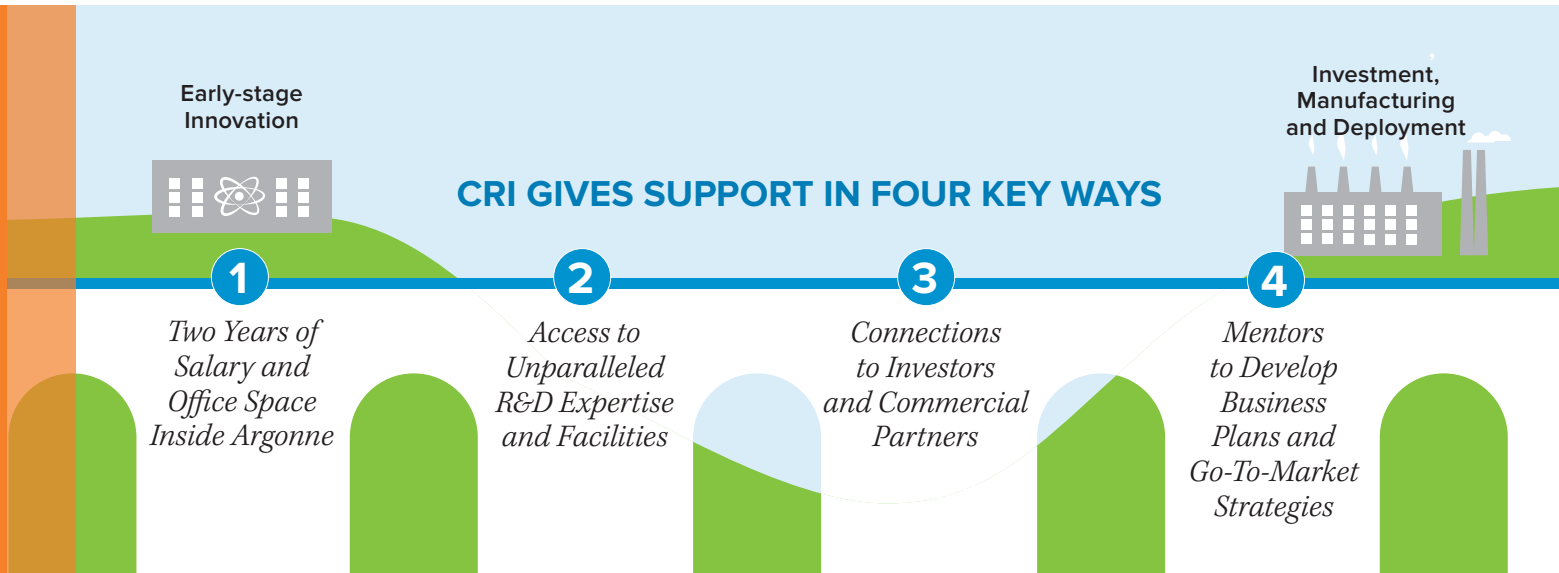


A NEW INNOVATION MODEL TO ACCELERATE ENERGY AND SCIENCE TECHNOLOGY



The Chain Reaction Innovations model bridges the energy and physical science commercialization “Valley of Death.”

Chain Reaction Innovations (CRI) capitalizes on the unique R&D tools and expertise at Argonne National Laboratory and the strong entrepreneurial ecosystem of the Midwest to bridge the commercialization “Valley of Death” between the research bench and the marketplace. Innovation ideas typically stall because of a lack of investment and a shortage in the mentoring support needed to build strong business plans that attract commercial partners or customers. CRI’s support system compresses development time and trains future entrepreneurs to create a bridge across this Valley of Death.

The CRI program last two years and annually accepts a new cohort of four to six of the best innovators from across the country. With the support of the Energy Efficiency & Renewable Energy and the Advanced Manufacturing offices in the U.S. Department of Energy, innovators get a salary so they can focus full-time on development and utilize research space at Argonne to reduce R&D time, accelerate validation and testing, and de-risk complex technology to the level to quickly attract investors and commercial partners. Innovators receive mentoring from area entrepreneur groups. CRI also provides connections

to networks of potential investors and commercial partners.

Innovators get up to \$420,000 over two years to develop technology that can increase American competitiveness while addressing global challenges in areas including sustainable or efficient energy, high-performance materials, and advanced manufacturing. CRI focuses on the innovations outside the scope of traditional programs and industry R&D teams: high-risk technologies based on physics, materials science, chemistry or nanotechnology, which require long development cycles.

CRI helps the nation’s top talent develop the next-generation of economical scalable cleantech and energy-efficient products and manufacturing processes. This drives job growth through the creation of startups companies and technology transfer that de-risk innovation for industry.

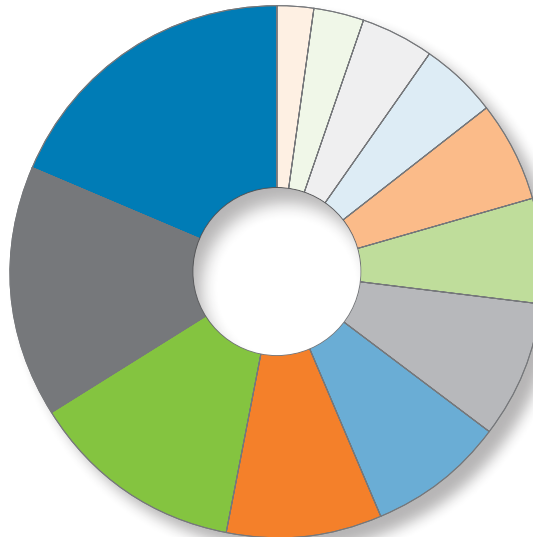
CHAIN REACTION INNOVATIONS

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INNOVATION IDEAS FROM THE 2016 COHORT APPLICANTS

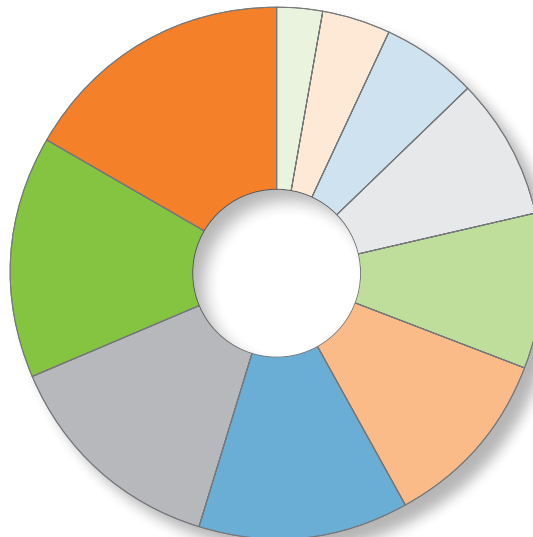
2016 COHORT MEMBERS

- **Felipe Gomez del Campo** – Aerospace: Decrease the cost of jet fuel by designing a new fuel nozzle that uses plasma-assisted combustion to burn fuel more efficiently during flight and idling.
- **Ian Hamilton** – Recycling & energy generation: Create new long-life, lightweight weather-independent power by recycling the by-product of nuclear waste decay to create electricity.
- **Chad Mason** – Transportation: Decrease the cost of fuel cells by eliminating the need for the electrolytes to act as electronic insulators. which will decrease water management costs. Development of a low-temperature solid-state fuel cell opens the door for new applications for electrochemical devices.
- **Tyler Huggins and Justin Whiteley** – Recycling & energy storage: Reduce expensive wastewater treatment costs and create a cheaper manufacturing process for high-performance carbon products. This is accomplished by using wastewater to grow fungus to create tunable carbon-based products, such as battery electrodes.
- **Julie Blumreiter and Bernard Johnson** – Transportation: Decrease the operating cost of heavy-duty transportation by achieving higher engine efficiency, enhanced performance, and simplified after treatment to control emissions through the development of a sootless drop-in diesel engine replacement that uses low carbon, renewable liquid fuels. The engine technology accomplishes these goals by using clean-burning alcohol fuels in a highly efficient manner.



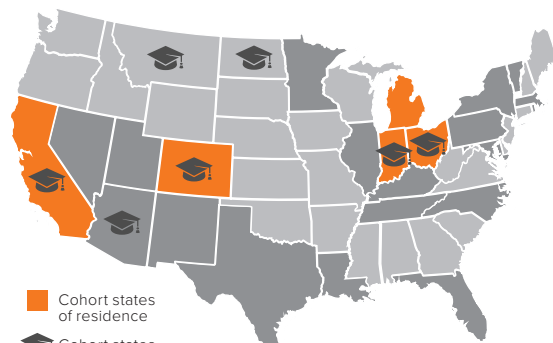
PROPOSED TECHNOLOGY

- Food Security
- Health
- Chemicals
- Water
- Other
- Sensors
- Transportation
- Electronics
- Fuels
- Materials
- Energy Storage
- Energy Generation



TECHNICAL EXPERTISE

- Biology
- Business & Finance
- Chemistry/Chemical Engineering
- Computer Science
- Electrical Engineering
- Materials Science
- Mechanical Engineering
- Physics
- Policy & Regulation
- Other



DEMOGRAPHICS

Applicants for CRI came from 22 states. About 50 percent currently work in startups. The remainders are students, professors, post docs and members of industry.