

September 11, 2017

MilliporeSigma Announces \$5,000 Grand Prize Winner of Alfred R. Bader Award for Student Innovation

- **Four student chemists awarded for innovation in synthetic organic chemistry**
- **Grand prize winner Thomas McTeague from Massachusetts Institute of Technology selected based on research presentation at Bader Student Chemistry Symposium**

Billerica, Massachusetts, September 11, 2017 – MilliporeSigma recognized four student chemists for their research and innovations in synthetic organic chemistry as part of the Alfred R. Bader Student Chemistry Symposium in Darmstadt, Germany. At the close of the event, students presented their research to an audience of MilliporeSigma staff and guests, and a panel of judges selected Thomas McTeague from the Massachusetts Institute of Technology for the \$5,000 grand prize.

Following is a list of the finalists and their research topics:

- Thomas McTeague, Photoredox Activation of SF₆ for Fluorination, \$5,000 grand prize winner, plus \$500 prize winner.

Other winners of \$500 prizes were:

- Robynne Neff, Design and Development of a New Commercially Viable Pd(0)-Catalyst.
- Keita Tanaka, Palladium-catalyzed Remote C–H Activation with Bifunctional Template.
- Jennifer Matsui, Photoredox-Mediated Dual Catalysis and Metal-Free C–H Alkylation: Incorporating New Radical Precursors and Utilizing Complex Alkyltrifluoroborates for Late-Stage Functionalization.



News Release

"We're proud to recognize young chemists and their innovative research," said Udit Batra, CEO, MilliporeSigma. "Novel compound discoveries in synthetic organic chemistry can transform pharmaceutical, agriculture, and manufacturing industries. As a longstanding leader and collaborator in the chemistry space, these discoveries align with our objective to continue fostering curiosity and accelerating innovation."

McTeague's presentation elaborated on his search for a new fluoride source using the inert but common SF₆ gas in chemical synthesis. While he was not fully successful in naming a new source, he did disprove prevailing thought about SF₆ and lay important ground for reducing costs of organofluorine compounds in many pharma and agrochemical applications. Organofluorines are found in at least 30 percent of agrochemicals and as many as one-fifth of pharmaceuticals.

The Alfred R. Bader Award for Student Innovation competition was open to advanced graduate students (3+ years) in synthetic organic chemistry from around the world and recognizes the big ideas of up-and-coming chemists whose work is expected to accelerate progress in chemistry. The contest theme this year was the development of instrumentation broadly applicable to synthetic organic chemistry and the reactive use of current reagents, catalysts and ligands in methodology or total synthesis projects. The award is named for Sigma-Aldrich co-founder Alfred R. Bader.

For more than a decade, MilliporeSigma has developed partnerships with academic chemists and their students in recognition of innovative chemistry through philanthropic contributions to the field.

About the Bader Awards

As a young chemistry graduate student, Alfred R. Bader valued service and selection. It was these ideals on which he cofounded the Aldrich Chemical Company in 1951. Bader sought to save research chemists time by providing quality standardized chemicals. He was one of the foremost chemical innovators of his time, and his legacy endures in the Sigma-Aldrich name and in many philanthropic designations and honors. Soon after cofounding Aldrich, Bader fostered global relationships with small chemical suppliers and his ever-innovative customers to grow his catalogue and company. The result was fast success and the development of one of the best-known chemical catalogues. In 1975, the company's name changed to Sigma-Aldrich after a merger. Today, the name continues as part of Merck KGaA, Darmstadt, Germany. Bader's commitment to collaboration with scientists, cutting-edge products, and outstanding quality endures in the dedication of current employees and outreach activities like the

News Release

Alfred R. Bader Award for Student Innovation. More than a decade's worth of chemistry graduate students have participated in the Alfred R. Bader Awards for Student Innovation. Over the years the prize amounts and application criteria have varied, but the awards have always recognized the work of up-and-coming chemists with big ideas. Previous awardees include Sigma-Aldrich partners Abby Doyle and Stephen T. Heller.

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About the Life Science Business of Merck KGaA, Darmstadt, Germany

The life science business of Merck KGaA, Darmstadt, Germany, which operates as MilliporeSigma in the U.S. and Canada, has 20,000 employees and 65 manufacturing sites worldwide, with a portfolio of more than 300,000 products enabling scientific discovery. Udit Batra is the global chief executive officer of MilliporeSigma.

Merck KGaA, Darmstadt, Germany completed its \$17 billion acquisition of Sigma-Aldrich in November 2015, creating a leader in the \$125 billion global life science industry.

Merck KGaA, Darmstadt, Germany is a leading company for innovative and top-quality high-tech products in healthcare, life science and performance materials. The company has six businesses – Biopharmaceuticals, Consumer Health, Allergopharma, Biosimilars, Life Science and Performance Materials – and generated sales of €15 billion in 2016. Around 50,000 employees work in 66 countries to improve the quality of life for patients, to foster the success of customers and to help meet global challenges.

Merck KGaA, Darmstadt, Germany is the world's oldest pharmaceutical and chemical company – since 1668, the company has stood for innovation, business success and responsible entrepreneurship. Holding an approximately 70 percent interest, the founding family remains the majority owner of the company to this day. The company holds the global rights to the name and the trademark "Merck" internationally except for the United States and Canada, where the company operates as EMD Serono, MilliporeSigma and EMD Performance Materials.