

Profile of an Early-Career Researcher

Thomas Maimone, PhD



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Thomas Maimone is an Associate Professor in the chemistry department at the University of California-Berkeley. His research centers around synthetic organic chemistry, with a particular focus on natural products chemistry. To date, the Maimone group has completed the chemical syntheses of over twenty complex natural products, with a major goal of improving synthetic efficiency through both strategic design and reaction discovery. Most notable is his work on the total synthesis of complex terpenes, including the cytotoxic ophiobolin sesterterpenes and the neuroactive *Illicium* sesquiterpenes. His group has also reported several methods for C–C bond formation and has utilized these methods in complex molecule synthesis.

In collaboration with the Nomura lab at UC-Berkeley, the Maimone group is also invested in mapping the protein targets of covalently acting natural products and turning such molecules into useful chemical tools. One recent investigation, involving the natural product nimbolide, identified the RING E3 ligase RNF114 as a target of this anti-cancer molecule. By binding at a presumed substrate recognition domain of RNF114, nimbolide could then be made into a PROTAC for use in targeted protein degradation. This work is featured in the research highlights this fall. Much of Prof. Maimone's translational work centers around The Novartis-Berkeley Center for Proteomics and Chemistry Technologies, of which he is a member.

Prof. Maimone obtained his B.S. degree in chemistry in 2004 from The University of California-Berkeley, wherein he was introduced to synthesis research by Prof. Dirk Trauner. From 2005-2009, he was a member of Phil Baran's research group at The Scripps Research Institute, wherein he completed total syntheses of the alkaloids hapalindole U and ambiguine H and was also part of the team that completed the synthesis of the diterpene vinigrol, a longstanding challenge in the field. In 2009, he began a NIH post-doctoral fellowship at MIT under the guidance of Prof. Stephen Buchwald. At MIT, Prof. Maimone studied Pd-catalyzed methods to make carbon-oxygen and carbon-fluorine bonds. His work also uncovered that many Buchwald biaryl phosphines are modified *in-situ*, generating new, bulkier supporting ligands. In 2012, he returned to UC-Berkeley as an assistant professor and was granted tenure in 2018.

The work reported by the Maimone research group has not gone unnoticed. He has been recognized with a number of academic and pharmaceutical awards, including a 2019 Arthur C. Cope Scholar Award, 2017 National Fresenius Award, 2016 Cottrell Scholar Award, 2016 NSF Career Award, and a 2015 Alfred P. Sloan Fellowship. He is the recipient of synthetic organic young investigator awards sponsored by Bristol Myers Squibb, Novartis, Eli Lilly, and Amgen. We are very pleased to highlight the excellent work of Professor Thomas Maimone and his research group.