세미나 초록

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발표 주제	**Water-Accelerated Aquacatalytic Reactions**
발표 내용	Along with the significant demand for sustainable homogeneous catalysis, the importance of efficient synthesis and simple purification of complex organic compounds is attracting attention.[1] In this presentation, a series of water-accelerated chemical transformations will be discussed. Firstly, unprecedented N-heterocyclic carbene (NHC)-catalyzed aza-Michael addition reaction is shown to access β-aminosulfonyl fluorides, which are key hubs of the sulfur(VI) fluoride exchange (SuFEx) reaction.[2] In addition, new methods based on high-turnover catalytic Michael and thia-Michael addition reactions via significant hydrophobic amplification are displayed.[3–5] Finally, the synergistic action of a hydrophobic Brønsted acid in combination with a hydrogen-bonding donor activator enabled the formation of the three-component Petasis-type allylation reaction.[6] The developed exceptionally mild but potent catalytic systems facilitated a broad substrate scope, and enabled efficient multi-gram scalabilities. As a crucial reaction medium in all cases, water considerably augmented the reaction rate with excellent chemo- and site-selectivity (up to >99:1) compared to conventional organic solvents.[7] **References** [1] M. Israr, H. Y. Bae**Green Chem.* **2023**, *25*, 2387. [2] J. H. Park, S. B. Lee, B. J. Koo, H. Y. Bae* *ChemSusChem* **2022**, 15,e202201000. [3] S. B. Lee, J. H. Park, H. Y. Bae**ChemSusChem* **2022**, *15*, e202200634. [4] J. H. Park, S. G. Song, M. H. Shin, C. Song,* H. Y. Bae**ACS Sensors* **2022**, *7*, 423–429. [5] J. H. Park, G. A. González-Montiel, P. H. Y. Cheong,* H. Y. Bae* *Organic Letters* **2023**, *25*, 1056. [6] P. Goswami, S. Y. Cho, J. H. Park, W. H. Kim, H. J. Kim, M. H. Shin, H. Y. Bae* H. Y. *Nat. Communications* **2022**, *13*, 2702. [7] W. H. Kim, S. B. Song, D. E. Lee, P. Goswami, Y. K. Chung, S. Choi, W. H. Jung, S. U. Choi, S. Ham, Y. Oh, K. H. Kim*, J. Huh*, H. Y. Bae* *Cell Reports Physical Science* **2024**, *5*, 101786.