

# Modular Synthesis of Azines Bearing a Guanidine Core from *N*-Heterocyclic Carbene (NHC)-Derived Selenoureas and Diazo Reagents

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*N*-Heterocyclic carbene (NHC)-derived selenoureas comprise a fundamentally important class of NHC derivatives, with significant relevance in coordination chemistry and for probing the electronic properties of NHCs. Despite the extensive reactivity of chalcogen-containing compounds, the utilization of NHC-derived selenoureas as versatile organic building blocks has remained largely unexplored.

The present contribution introduces a novel, straightforward transformation leading to azines bearing a guanidine moiety, through the reaction of a wide range of NHC-derived selenoureas with commercially available diazo compounds, in the presence of triphenylphosphine. This transformation offers a new approach to such products, having biological, materials chemistry, and organic synthesis applications. The guanidine-bearing azines are obtained in excellent yields, with all manipulations taking place in air. A reaction mechanism is proposed, based on both experimental mechanistic findings and density functional theory (DFT) calculations.

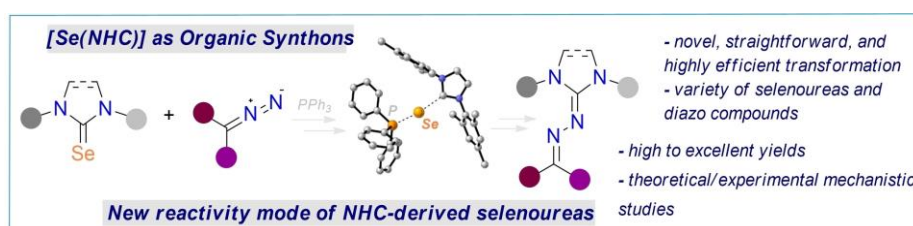


Figure: Synthesis of azines bearing a guanidine moiety.

## Reference:

E. Tonis, N. V. Tzouras, N. Bracho Pozsoni, M. Saab, S. Bhandary, K. Van Hecke, D. J. Nelson, F. Nahra, S. P. Nolan, G. C. Vougioukalakis, *Chem. Eur. J.* **2024**, *30*, e202401816.

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