Synthesis of Hydrazides by N–N Coupling

Significance: Chang, Chen, and co-workers report a synthesis of hydrazides from arylalkylamines and dioxazolones, which serve as nitrene precursors. Iridium complexes as well as simple iron halides were found to efficiently catalyze the transformation.

Comment: The reaction proceeds under mild conditions with excellent functional group tolerance, including pseudopeptides. Mechanistic studies indicate that the attack of the electrophilic iridium-nitrenoid intermediate by the amine is assisted by Cl···HN bonding.

Selected examples:

- [Ir]: 92% yield
- [Ir]: 75% yield
- [Ir]: 97% yield; [Fe]: 78% yield
- [Ir]: 93% yield
- [Ir]: 97% yield
- [Ir]: 59% yield; [Fe]: 62% yield
- [Ir]: 95% yield; [Fe]: 91% yield