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Formation of an Unusual Four-Membered Nitrogen Ring (Tetrazetidine) Radical Cation
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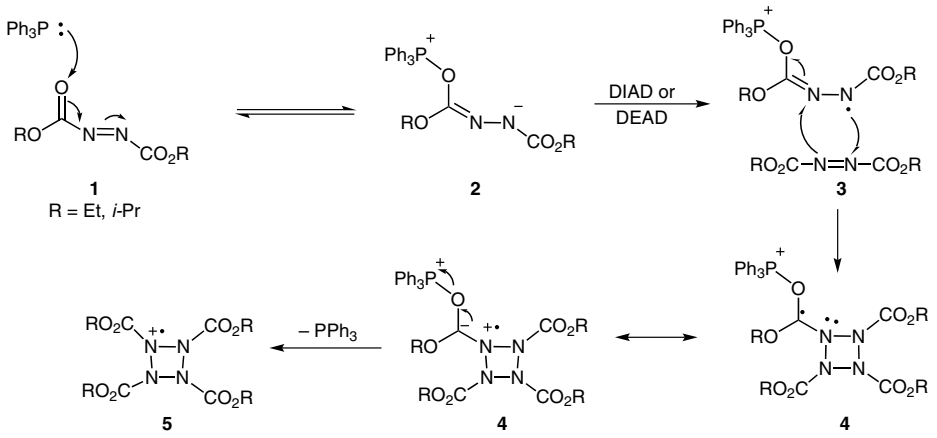
# Formation of an Unusual Four-Membered Nitrogen Ring




**Significance:** Above is one of three proposed mechanisms for the formation of the new radical cationic nitrogen four-membered ring **5**. This tetrazetidine forms from allowing triphenylphosphine and diisopropyl azodicarboxylate to react. Previous studies had shown cursory evidence for the formation of a tetrazetidine by other methods, while this work offers more conclusive evidence in the form of EPR spectra and DFT calculations.

**Comment:** The reaction was monitored by EPR spectroscopy, which showed the presence and disappearance of **3** followed by the formation of **5**. Thus, the authors claim that the above mechanism is the most plausible. The DFT calculations show electron density on the methine or methylene protons (R = Et, *i*-Pr), which helps to rationalize hydrogen hyperfine coupling seen on the EPR spectra.

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