



## Reactive Nitrogen Species: Molecular Mechanisms and Potential Significance in Health and Disease

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### Résumé en anglais

Reactive nitrogen species (RNS) are various nitric oxide-derived compounds, including nitroxyl anion, nitrosonium cation, higher oxides of nitrogen, S-nitrosothiols, and dinitrosyl iron complexes. RNS have been recognized as playing a crucial role in the physiologic regulation of many, if not all, living cells, such as smooth muscle cells, cardiomyocytes, platelets, and nervous and juxtaglomerular cells. They possess pleiotropic properties on cellular targets after both posttranslational modifications and interactions with reactive oxygen species. Elevated levels of RNS have been implicated in cell injury and death by inducing nitrosative stress. The aim of this comprehensive review is to address the mechanisms of formation and removal of RNS, highlighting their potential cellular targets: lipids, DNA, and proteins. The specific importance of RNS and their paradoxical effects, depending on their local concentration under physiologic conditions, is underscored. An increasing number of compounds that modulate RNS processing or targets are being identified. Such compounds are now undergoing preclinical and clinical evaluations in the treatment of pathologies associated with RNS-induced cellular damage. Future research should help to elucidate the involvement of RNS in the therapeutic effect of drugs used to treat neurodegenerative, cardiovascular, metabolic, and inflammatory diseases and cancer.

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**Liens**

[1] <http://okina.univ-angers.fr/c.martinez/publications>

[2] <http://okina.univ-angers.fr/r.andrian/publications>

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