


# Redmond Red as a Redox Probe for the DNA-Mediated Detection of Abasic Sites

- [Abstract](#)
-  [Full Text HTML](#)
-  [Hi-Res PDF\[323 KB\]](#)
-  [PDF w/ Links\[143 KB\]](#)
- [Supporting Info](#)

Marisa C. Buzzeo and Jacqueline K. Barton\*

Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, California 91125

*Bioconjugate Chem.*, 2008, 19 (11), pp 2110-2112

Publication Date (Web): October 3, 2008

Copyright © 2008 American Chemical Society



\* Author to whom correspondence should be addressed. E-mail: [jkbarton@caltech.edu](mailto:jkbarton@caltech.edu).

## Abstract

Redmond Red, a fluorophore containing a redox-active phenoxazine core, has been explored as a new electrochemical probe for the detection of abasic sites in double-stranded DNA. The electrochemical behavior of Redmond Red-modified DNA at gold surfaces exhibits stable, quasi-reversible voltammetry with a midpoint potential centered around  $-50$  mV versus NHE. Importantly, with Redmond Red positioned opposite an abasic site within the DNA duplex, the electrochemical response is significantly enhanced compared to Redmond Red positioned across from a base. Redmond Red, reporting only if well-stacked in the duplex, represents a sensitive probe to detect abasic sites electrochemically in a DNA-mediated reaction.