

## Transfer hydrogenation as a redox process in nucleotides

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### Abstract

© 2014 American Chemical Society. Using a combined theoretical and experimental strategy, the heats of hydrogenation of the nucleotide bases uracil, thymine, cytosine, adenine, and guanine have been determined. The most easily hydrogenated base is uracil, followed by thymine and cytosine. Comparison of these hydrogenation enthalpies with those of ketones and aldehydes derived from sugar models indicates the possibility of near-thermoneutral hydrogen transfer between uracil and the sugar phosphate backbone in oligonucleotides. (Figure Presented)

<http://dx.doi.org/10.1021/jp507855k>

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