Identification and Deamination of New DNA Photoproducts

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Materials

- 5'-(AAAGTGAGGTTGAG)30-3' was purchased from IDT.
- Nuclease P1 (NF1) from Pan/Aprochrome, phosphodiesterase I (PDE I) from Boehringer, and phosphodiesterase II (PDE II) from Roche were purchased from Sigma.

Methods

- Reverse-phase HPLC was done on an X-bridge column (C18, 4.6 × 250 mm, 3.5 μm).
- MALDI MS and MS/MS experiments were conducted on ABI 4700 TOF/TOF mass spectrometer in reflector positive mode.

Results

- Deamination of C/mC→U/T substitution has been correlated with C/mC→U/T substitution.
- We describe our efforts to elucidate the structure of this unknown major photoproduct.
- The deamination of C/mC-containing UV photoproduction has been characterized with C/mC→U/T substitution.
- Herein we describe our efforts to elucidate the structure of this unknown major photoproduct.

Conclusions

- Further NMR studies will be conducted to determine the structural conformation of the electroactive photoproduct as a key to better understand how it facilitates the formation of the cis-syn adduct, and to establish the electroactivity of the photoproduct.
- The structure of the unknown major photoproduct found in our study is not suited for electrochemistry.

Future Work

- Further NMR studies will be conducted to determine the structural conformation of the electroactive photoproduct as a key to better understand how it facilitates the formation of the cis-syn adduct, and to establish the electroactivity of the photoproduct.
- The structure of the unknown major photoproduct found in our study is not suited for electrochemistry.

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Fig. 1A. HPLC profiles of 3' deamination of C/mC-photoproduct in aqueous buffer and 254 nm UV light suggested that 2(3+)-Adduct but not 1(TpT)Dimer

Fig. 2A. NMR spectra of unknown photoproduc of 3' deamination of C/mC-photoproduct at room temperature for 0 min, 1 min, 2 min, and 3 min.

Fig. 3A. NMR spectra of unknown photoproduc of 3' deamination of C/mC-photoproduct at room temperature for 0 min, 1 min, 2 min, and 3 min.