SUPPORTING INFORMATION

Product profile resulting from reaction of dG with methylglyoxal under neutral and alkaline conditions. Chromatography was carried out on an Agilent 1100 HPLC system using a 5µ Waters Atlantis T3 column, 4.6mm x 150mm. Separation was achieved using a 0% to 20% acetonitrile gradient in 50mM TEAA pH7 over 15 minutes. (**A**) dG standard. (**B**) Time course for reaction of dG with MG (1:1, 1.5 mM) at neutral pH. Consistent with an equilibrium reaction, the cyclic MG adduct ***2*** was formed rapidly, but failed to accumulate over time. Only minor amounts of CEdG ***1*** and bis-MG adduct ***3*** were detected under these conditions. (**C**) Addition of pH 9 phosphate buffer to the neutral reaction (**B**) after 41h caused the rapid disappearance of ***2*** and an increase in peaks corresponding to bis-adduct ***3*** and CEdG ***1*** as diastereomeric mixtures. The 4 possible diastereomers of ***3*** were unresolved under these chromatographic conditions. (**D**) Initiation of the reaction in pH 9 phosphate buffer resulted in the nearly exclusive formation of ***2*** and ***3***. (**E**) HPLC chromatogram of CEdG ***(R)*** + CEdG***(S)*** standards (**F**) 48 hour reaction of dG (1.5mM) with MG (4mM) at 37°C and neutral pH. (**G**) Analysis of products resulting from 10 mM sodium periodate treatment of reaction (**F**) for 20 minutes. (**H**) HPLC chromatogram of N^2-acyl-dG standard.