

**Figure S1.** Autoradiograms of 20% denaturing PAGE, showing the cleavage kinetics of 5'- $^{32}$ P labeled target RNA (**14**) by RNase H1 in the oxetane  $\underline{\mathbf{C}}$  modified AON (**5**)/RNA(**14**) hybrid duplex. Conditions of cleavage reaction: RNA (0.008  $\mu$ M – 1  $\mu$ M) and AONs (5  $\mu$ M) in buffer, containing 20 mM Tris-HCl (pH 8.0), 20 mM KCl, 10 mM Mg Cl<sub>2</sub> and 0.1 mM DTT at 21 C, 0.06 U of RNase H. Total reaction volume is 30  $\mu$ l. (See Materials and Methods section for full experimental details.)