



**Figure S7.** Autoradiograms of 20% denaturing PAGE, showing the cleavage kinetics of 5'- $^{32}$ P-labelled target RNA (**14**) by RNase H1 in the native AON (**1**)/RNA (**14**) and the single, double and triple oxetane **T** modified AON (**2-4**)/RNA (**14**) hybrid duplexes. The kinetics of the control native 15mer AON (**1**) and double **T** AON (**3**) with 1  $\mu$ M and RNA (**14**) with 0.1  $\mu$ M concentration, used for the calibration of the exact RNase H concentration, are also shown. PDE-Ladder: snake venom PDE ladder. Conditions of cleavage reaction: RNA (0.1 or 0.5  $\mu$ M) and AONs (1 or 5  $\mu$ M) in buffer, containing 20 mM Tris-HCl (pH 8.0), 20 mM KCl, 10 mM MgCl<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.)

