Supporting Information

Photocaged Morpholino Oligomers for the Light-Regulation of Gene Function in Zebrafish and *Xenopus* Embryos

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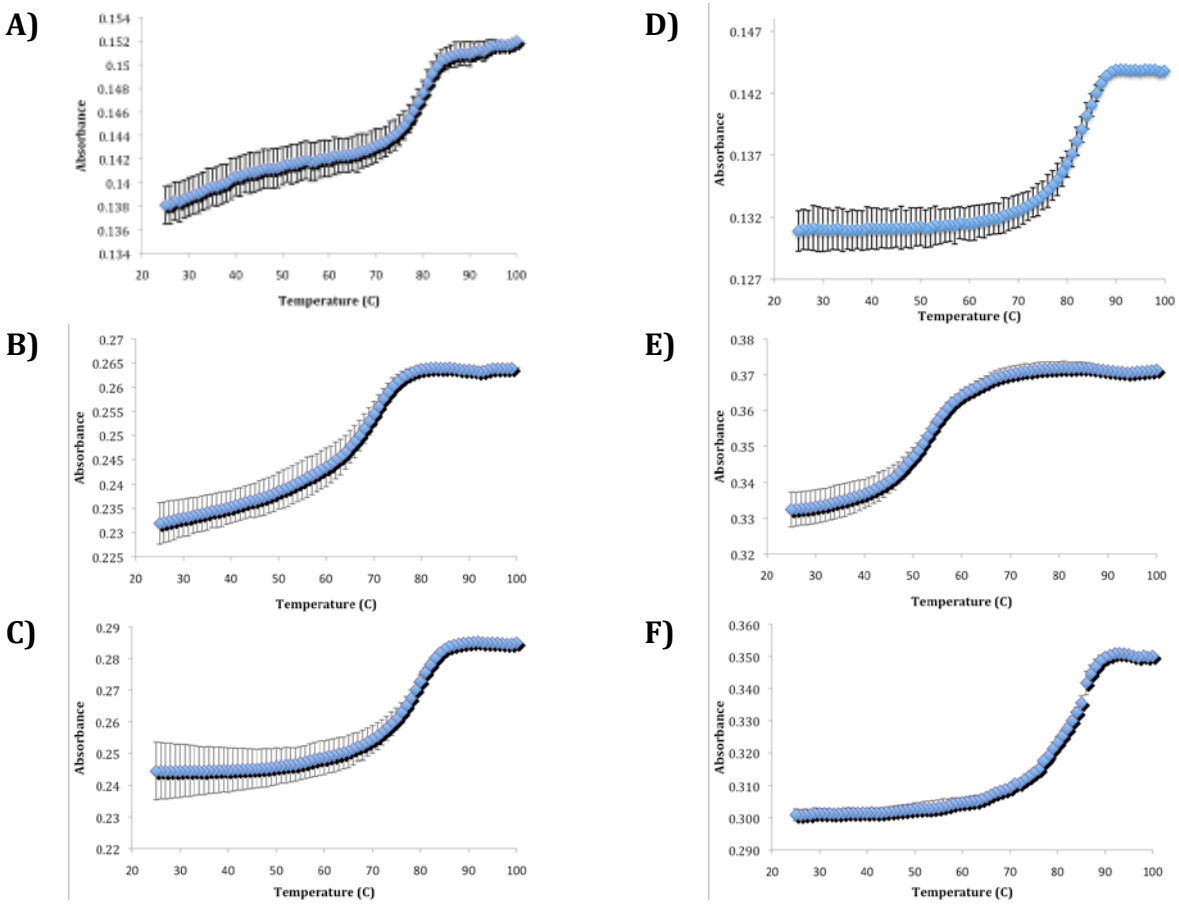
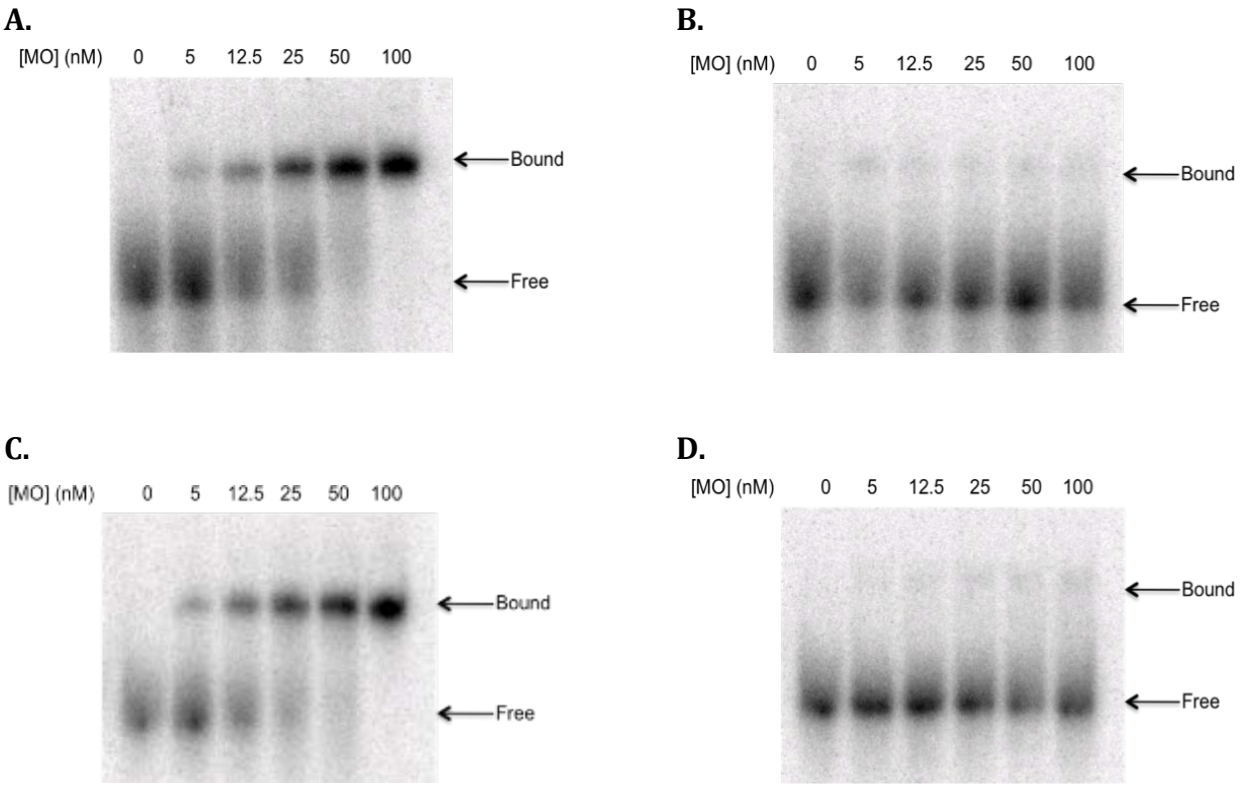
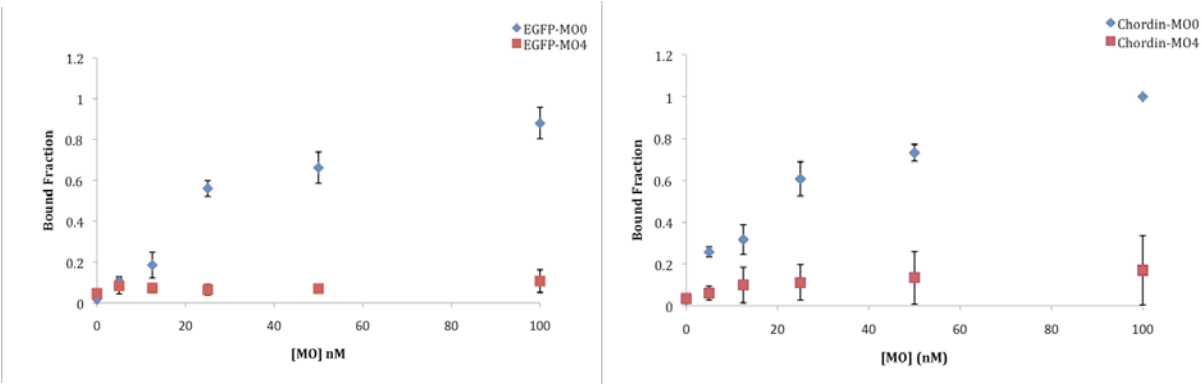


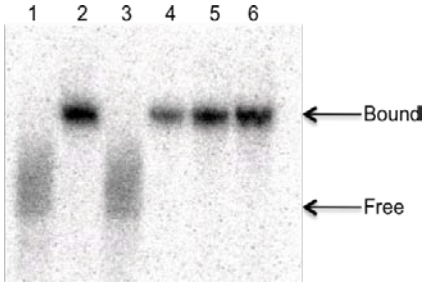
Supporting Figure S1. Melt curves of duplexes of non-caged and caged morpholinos and their complementary RNA. (A) *chordin*-MO^0 (B) *chordin*-MO^4, no UV (C) *chordin*-MO^4, 10 min UV (D) *EGFP*-MO^0 (E) *EGFP*-MO^4, no UV (F) *EGFP*-MO^4, 10 min UV. Error bars represent standard deviations from three independent measurements.



Supporting Figure S2. Representative gel shift assay of (A) *EGFP*-MO^0, (B) *EGFP*-MO^4, (C) *chordin*-MO^0 and (D) *chordin*-MO^4 with corresponding target RNA. RNA (10 μM) complementary to each morpholino was 5′ end labeled with γ-^{32}P ATP. 100 nM of radiolabeled RNA was incubated with increasing concentrations of morpholino (0, 5, 12.5, 25, 50, and 100 nM) at 80 °C for 5 min and cooled to 37 °C for 1 hour. RNA monomers were separated from morpholino:RNA duplexes by a 20% native polyacrylamide gel electrophoresis and imaged with a Storm Phosphorimager. The non-caged morpholino fully binds the RNA substrate at equimolar concentration, while the caged morpholino leaves almost all RNA free. Gel shifts were performed in triplicate.



Supporting Figure S3. Quantification of morpholino gel shift assays. Gel images (Supporting Figure S2) were quantified with ImageQuant, and the bound morpholino:RNA fraction was plotted against the concentration of morpholino. Gel shifts were performed in triplicate and error bars represent the standard deviation of three individual experiments.



Supporting Figure S4. Irradiation time course gel shift assay of *EGFP* morpholino:RNA duplex. Gel shifts were performed using 100 nM radiolabeled RNA and 100 nM morpholino as in Supporting Figure S2. Complete RNA binding can be observed after a 2 min UV irradiation (25 W hand-held UV lamp, 2.1 mW/cm^2). Lane (1) *EGFP* RNA; (2) *EGFP*-MO^0*:EGFP* RNA; (3) *EGFP*-MO^4*:EGFP* RNA, no UV; (4) *EGFP*-MO^4*:EGFP* RNA, 2 min UV; (5) *EGFP*-MO^4*:EGFP* RNA, 5 min UV; (6) *EGFP*-MO^4*:EGFP* RNA, 10 min UV.