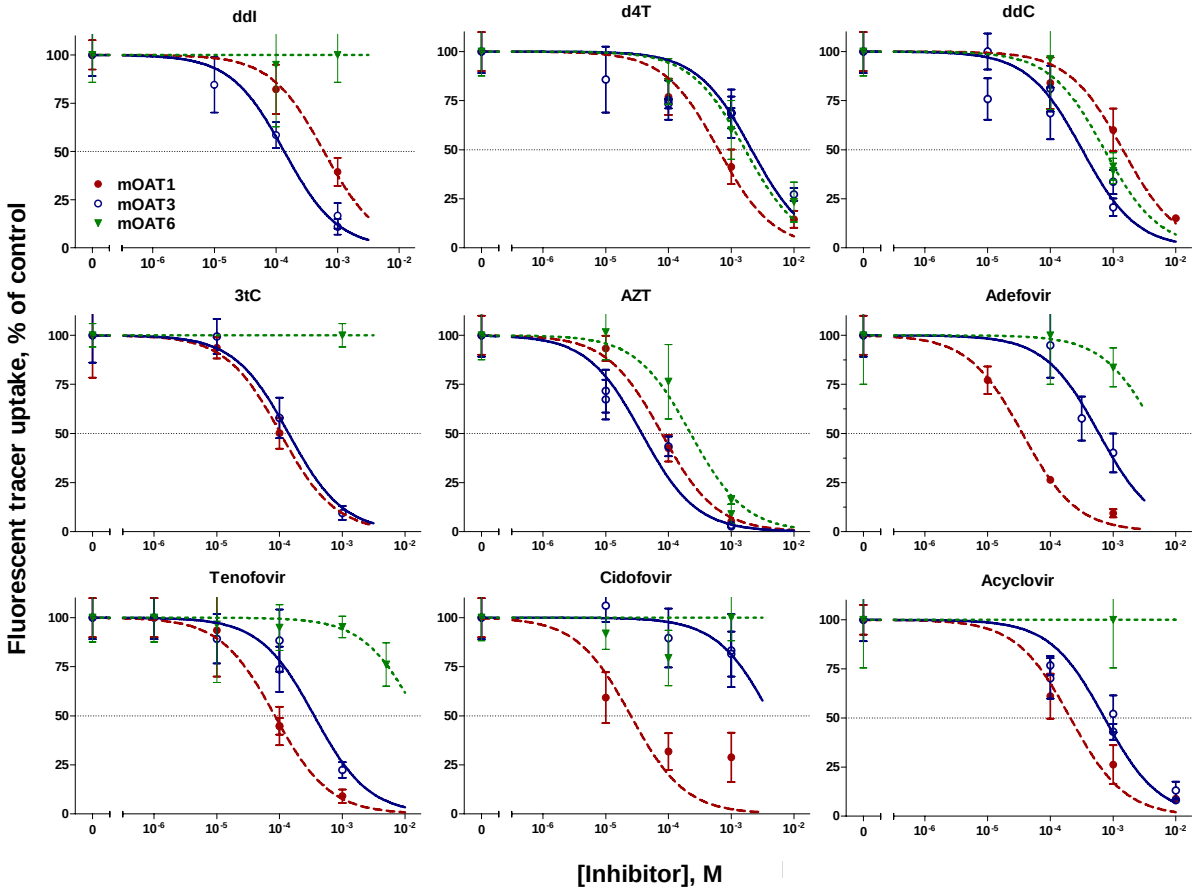
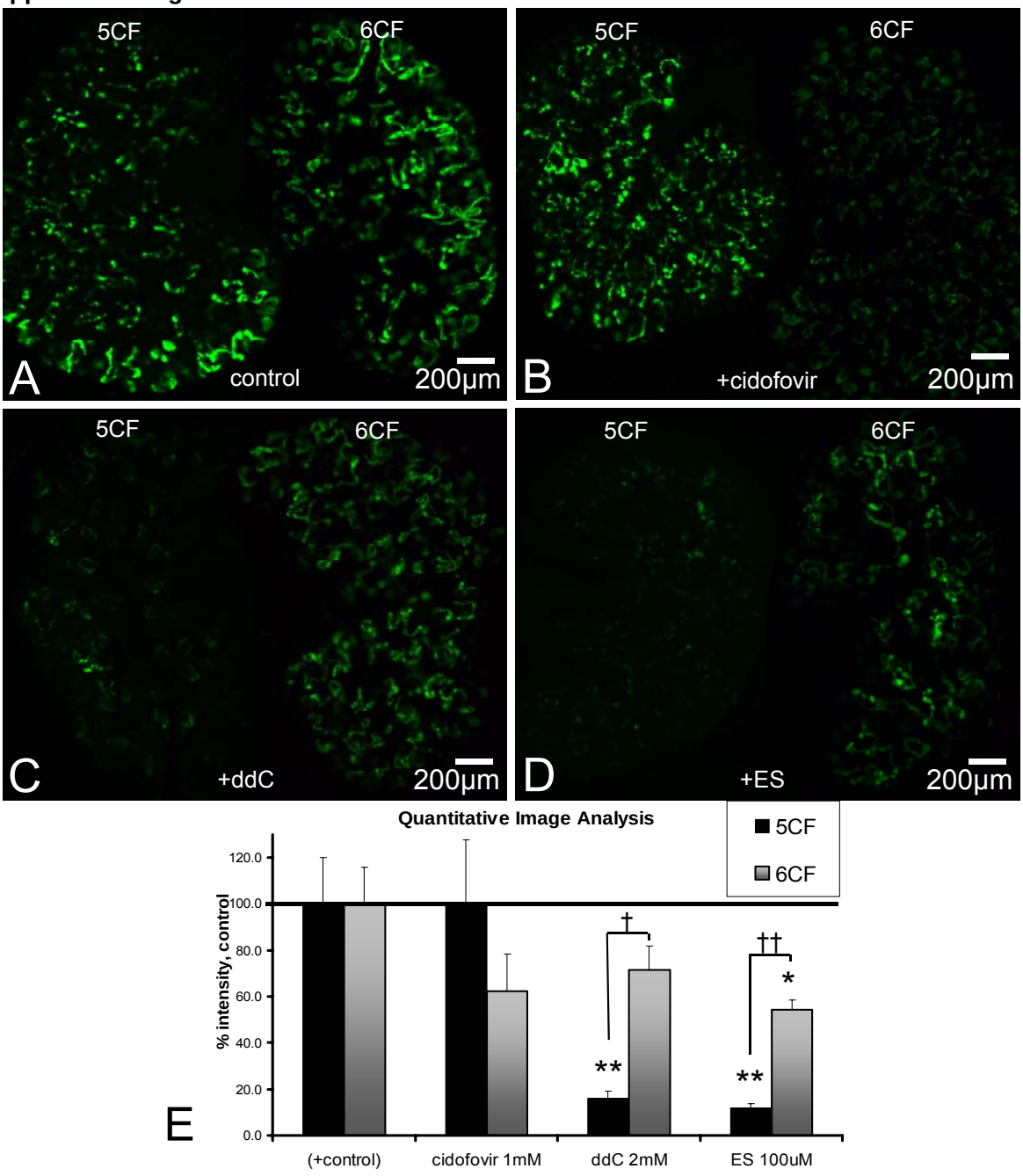
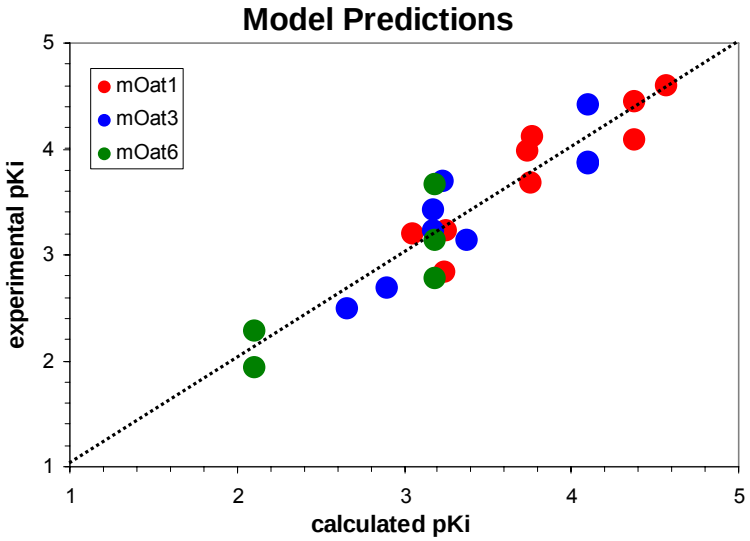
Supplemental Figure 1.



Supplemental Figure 2.



Supplemental Figure 3.



Supplemental Fig. 1. *Inhibition of fluorescent tracer uptake by various antivirals.* The affinity of antivirals for three Oats were determined using fluorescent tracers identified in Table 1. Each value is the percent inhibition of the control uptake (mean ± SEM, n=4) from one to two experiments. Curves were fit using nonlinear regression and affinity values are presented in Table 2.

Supplemental Fig. 2. *Differential Oat affinity for 5CF vs. 6CF in wildtype WEK.* Left of panel: 5CF; Right of panel: 6CF. **A.** Control WT WEK uptake. **B.** WT WEKs +1 mM Cidofovir. **C.** WT WEKs +2 mM ddC. **D.** WT WEKs +100 μM ES. **E.** Quantitative Image Analysis. The images are shown as comparative inhibitor effects on 5CF or 6CF uptake in WEK (which contain all Oat isoforms). There is a distinct inhibitory profile similar to $Oat1^{-/-}$ (Fig. 6), while 6CF appears to be a mix of both profiles, $Oat1^{-/-}$ + $Oat3^{-/-}$ (Fig. 5, 6). All images are representative of triplicate WEKs from the same experiment and pregnant female. **p*<0.05, ** *p*<0.01, † p<0.01, †† p<0.001

Supplemental Fig. 3. *Experimental vs calculated pK_i plot of Oats.* Models of antiviral binding to *mOat1, mOat3, and mOat6* were built using multiple linear regression of physicochemical properties. The models were used to predict the binding affinity (-logIC_{50} value; approximate pK_i value). Values are shown here from Table 3 as a ratio of calculated (predicted) pK_i to the experimental pK_i values obtained in Table 2. The calculated values efficiently predict binding affinity, and thus suggest the models are relevant.