**Supplementary Video Legends**

**Supplementary Video 1:** Three-Dimensional volume rendering of potassium iodine stained *Pde2A*+/+embryo (E14.5), sectioned in sagittal, coronal and transverse planes.

**Supplementary Video 2:** Three-Dimensional volume rendering of potassium iodine stained *Pde2A-/-* embryo (E14.5), sectioned in sagittal, coronal and transverse planes.

**Supplementary S1:** Morphological end molecular defects of the liver increase during development in PDE2A-/- embryos.

**Supplementary S2:** PDE2A inhibition does not affect liver cell differentiation in vitro.

**Supplementary S3:** The percentage of lymphocytes is normal in liver of PDE2A-/- embryos.