Likely annotate:

\*\*Colonnese, M. T., Kaminska, A., Minlebaev, M., Milh, M., Bloem, B., Lescure, S., Moriette, G., Chiron, C., Ben-Ari, Y., and Khazipov, R. (2010). A conserved switch in sensory processing prepares developing neocortex for vision, Neuron, 67(3), 480–98

Spontaneous activity in the developing cortex of humans and rats before visual experience is modulated by retinal input.

\*\*Ackman, J. B., Burbridge, T. J., and Crair, M. C. (2012). Retinal waves coordinate patterned activity throughout the developing visual system, Nature, 490(7419), 219–25

Retinal waves are present and propagate throughout the visual system in neonatal mice *in vivo*. Unexpectedly, waves are not random, and show biases in their nucleation, propagation and some bilateral correspondence.

\*\*Zhang, J., Ackman, J. B., Xu, H.-P., and Crair, M. C. (2011). Visual map development depends on the temporal pattern of binocular activity in mice, Nat Neurosci, 15(2), 298–307

Using chronic optogenetic techniques to stimulate retinal ganglion cells in mice before they are normally visually responsive, this paper demonstrates that the emergence of eye specific segregation in the lateral geniculate nucleus and superior colliculus of mice is sensitive to the relative timing of activity between the two eyes.

\*Demas, J. A., Payne, H., and Cline, H. T. (2012). Vision drives correlated activity without patterned spontaneous activity in developing Xenopus retina, Dev Neurobiol, 72(4), 537–46

Amphibians are visually responsive, but lack spontaneous retinal activity during developmental stages in which amniotes lack visual response but show spontaneous retinal activity. This suggests that ‘retinal waves’ are an evolutionary adaptation in animals that lack vision for extended periods of gestation during visual system development.

\*Sarnaik, R., Wang, B.-S., and Cang, J. (2013). Experience-Dependent and Independent Binocular Correspondence of Receptive Field Subregions in Mouse Visual Cortex, Cereb Cortex, (),

Vision is not necessary for the development of substantial overlap in binocular receptive fields and alignment of ON and OFF subregions in visual cortical neurons. However, visual experience enhances the degree of binocular receptive field correspondence.

\*Van Hooser, S. D., Li, Y., Christensson, M., Smith, G. B., White, L. E., and Fitzpatrick, D. (2012). Initial neighborhood biases and the quality of motion stimulation jointly influence the rapid emergence of direction preference in visual cortex, J Neurosci, 32(21), 7258–66

In ferret visual cortex, the emergence of robust maps for direction preference depends on visual experience. However, local neighborhood biases present before vision appear to nucleate the large scale organization of direction preference after vision.

\*Soto, F., Ma, X., Cecil, J. L., Vo, B. Q., Culican, S. M., and Kerschensteiner, D. (2012). Spontaneous activity promotes synapse formation in a cell-type-dependent manner in the developing retina, J Neurosci, 32(16), 5426–39

Rhythmic hyperactivity of RGCs in Crx-/- mutant mice leads to enhanced synaptogenesis in some, but not all bipolar cell connections with RGCs. Central projections are unaffected. Suggests a cell-type specific modulation of synaptogenesis by spontaneous activity in the retina.

Maybe annotate:

Laing, R. J., Bock, A. S., Lasiene, J., and Olavarria, J. F. (2012). Role of retinal input on the development of striate-extrastriate patterns of connections in the rat, J Comp Neurol, 520(14), 3256–76

These are enucleation experiments, which I don’t particularly like.

Bock, A. S., Kroenke, C. D., Taber, E. N., and Olavarria, J. F. (2012). Retinal input influences the size and corticocortical connectivity of visual cortex during postnatal development in the ferret, J Comp Neurol, 520(5), 914–32

Again, enucleation experiments.

Xu, H.-p., Furman, M., Mineur, Y. S., Chen, H., King, S. L., Zenisek, D., Zhou, Z. J., Butts, D. A., Tian, N., Picciotto, M. R., and Crair, M. C. (2011). An instructive role for patterned spontaneous retinal activity in mouse visual map development, Neuron, 70(6), 1115–27

Probably no annotation:

Dhande, O. S., Hua, E. W., Guh, E., Yeh, J., Bhatt, S., Zhang, Y., Ruthazer, E. S., Feller, M. B., and Crair, M. C. (2011). Development of Single Retinofugal Axon Arbors in Normal and beta2 Knock-Out Mice, J Neurosci, 31(9), 3384–99

Colonnese, M. T. and Khazipov, R. (2010). “Slow activity transients” in infant rat visual cortex: a spreading synchronous oscillation patterned by retinal waves, J Neurosci, 30(12), 4325–37

Siegel, F., Heimel, J. A., Peters, J., and Lohmann, C. (2012). Peripheral and central inputs shape network dynamics in the developing visual cortex in vivo, Curr Biol, 22(3), 253–8