

So what I'd like to do in the second half of this lecture is to really tell you what we know about the control of rhythms in mammals. In humans, we synchronize to light, and that light is received by our eyes in the retina and this information travels down the optic nerve into the base of the brain in a region called the hypothalamus, and within the hypothalamus sit two very small wing-like structures shown here in yellow that are composed of a few thousand neurons and we know now from animal experiments that I'm going to tell you about in a few minutes, that these structures actually contain our biological clock, the Suprachiasmatic Nucleus or the SCN as we call it, acts as a biological clock system for us in our brain. Now if we look inside the SCN we find it is made up of a network of nerve cells, many thousands of them. And interestingly these nerve cells fire with a circadian rhythm, and I'm going to show you an example of that at the end of my lecture. This kind of experiment has led to the idea that the clocks in these Suprachiasmatic Nucleus are actually cellular clocks, and so that it is within the individual cell that the clock mechanism really emerges fundamentally.