VIDEO TRANSCRIPT

A Look inside the Lab: Incubators – Video transcript

An incubator is actually pretty simple technology. What it does, is it keeps whatever is in it at a certain temperature. There isn't a set temperature that an incubator is always at, but, when we're working with human cells, almost always it's at 37° Celsius which is 98.6 degrees Fahrenheit, or the temperature of your body. Cells don't really survive very long if they're a few degrees warmer than that or a few degrees colder than that.

There are a number of different setups for incubators depending on what you're growing. When I culture human cells, we have stationary incubators, and these you just set plates in them and your cells grow, and actually they add some additional carbon dioxide into it, because it kind of simulates gas exchange that human cells would be undergoing in the body. And, we also have water pans in the bottom to keep the humidity at the right level and this is because if cells were to dry out too much, those conditions don't really match what is inside of our bodies, and again they can suffer from that.

But, we also have shaking incubators, and these incubators, basically you have this swirling motion, and because the bacteria that we're growing are aerobic, they need oxygen to be incorporated in regularly, or they will start growing irregularly, and some of the cells will die. So, by having them go in that circular motion, it keeps them aerated and then growth continues healthily and without starvation.

If you're trying to grow anaerobic bacteria, you wouldn't have the shaker set up in your incubator because you don't want the oxygen to be incorporated into it regularly.

One type of tissue culture I specialize in with human cells is called ALI - it's an air-liquid interface, and I mature skin cells so that they act as a barrier. By growing them on a membrane, I kind of, I grow a little skin. But, those samples will actually be in the incubator for 2 weeks before they're completely mature.

I mostly do basic experimental research on allergic and immunological diseases, and so the vast majority of what I do would not be possible without my incubator.