Lab Introduction - Staining Human Cheek Cells

(0:00 - 1:04)

Okay class, here's a quick intro into staining human cheek cells. First of all you're going to need these supplies, which I will make available to you, but you should be familiar with them. The stain we're going to be using is methylene blue and you'll have one of these two versions of it, either one in a dropper bottle or one that you'll need a pipette for to dispense from.

Of course you'll need a microscope as well. The next step is to collect your epithelial cells, so you'll take a cotton tip applicator that's sterile, swab the inner surface of your cheek, and as you're swabbing and rubbing the surface, you want to make sure you're twirling the q-tip in your fingers so that you cover all surfaces with epithelial cells. Then you'll transfer them to your glass slide.

Once that's complete, we'll prepare for staining by putting our glass slide with our cells on it into the staining tray. Make sure you mix up your stain prior to application. All you need is a single little drop.

(1:06 - 1:32)

It's not too hard to do. Then the next step would be place a slip cover over the top. Then you want to soak up any excess with a paper towel, and here's how that works.

(1:35 - 2:24)

I'll fold it, make a real sharp edge, and just gently touch it to the edge of the slip cover and let that draw up by capillary action. Then once that's done, you're ready to go to the microscope. The first thing I'm going to do is turn my microscope on, take one of these linen papers, and clean all my lenses off, and even get the light.

(2:26 - 2:40)

These have been in storage for a few weeks. I've already done my ocular piece. Start on the lowest setting, page all the way to the bottom using the course adjustment, not the fine but the course.

(2:44 - 2:59)

Take the slide, and I tend to get my camera to work. I guess I'm going to do it here. First of all, let's get it in focus.

(3:10 - 3:37)

It's pretty crisp right there. Zoom in on this little clump. Wait for my camera to catch up.

It's a little old. Okay, we're going to try to zoom in on the clump. Right now, I'm on the 10 objective.

(3:38 - 3:55)

I'm going to start at the bottom again just because I got lost. Awesome. This is probably one of the best views we'll get.

(3:57 - 4:31)

You can play with the contrast a little bit. This is the light intensity bottom. The diaphragm.

You can see a few other things too, but it seemed good right where I had it. What we're looking at here is the dark nucleus of the epithelial cells stained with the DNA is really dense, so it takes up a lot more of the stain. Then you can see the edges of the cells of cytoplasm.

Here's a faint one in the back. It's a lot of debris. This could be dust or bacteria.

(4:31 - 4:45)

We're going to zoom in one more and see if we can get something. I might need to use oil. That's about as good as I'm going to get without oil, so let me put that on.

(4:54 - 5:14)

It's about a thousand times magnification there. Probably the best pictures I can get you all, but we can clearly see the edge of the cell. Maybe some sort of organelle or filament that took up some stain.

(5:21 - 5:51)

Let's see if we can create a better look. When I adjust the focal plane, you'll see these little granules right here. That might be melanin, but I'm just completely speculating.

(5:54 - 6:12)

Really, this picture you want, the one before that, if you're real careful and you look around, probably on the 40 magnification, you'll be able to find something like I posted with the one student that just clumped a bacteria next to one of her cells. All right, everybody, have a great rest of your day.