Human Epidermal Cells

Introduction

What do your skin cells look like? They are easy to remove and examine under a microscope.

Concepts

- Cell structure
- Epidermis

Materials

Methylene blue stain, 1% aqueous
Clear tape, 1.0 cm x 1.0 cm
Dissecting needle
Forceps
Microscope
Microscope slide
Slide cover slip
Soap/water

Safety Precautions

Methylene blue is a vital stain—it stains nearly everything, including skin and clothing. Prevention is the key when working with vital stains. Wear chemical-resistant gloves and avoid contact with eyes and skin. Wear safety glasses or chemical splash goggles whenever working with chemicals, heat or glassware in the lab.

Procedure

1. Wash the underside of the wrist that will be sampled for epidermal cells with soap and water.
2. Stick a clean piece of clear tape on the underside of the washed wrist.
3. Gently remove the piece of tape from the wrist being careful to avoid getting fingerprints on the tape. Forceps are useful to remove the tape and avoid fingerprinting the tape.
4. Place the tape, sticky-side up, on a clean microscope slide.
5. Stain the top, sticky side of the tape with 2 or 3 drops of 1% methylene blue solution.
6. Use a dissecting needle to gently place a cover slip over the sticky tape. Lower the coverslip down onto the tape and then remove the dissecting needle. This should help prevent staining your fingers. *Caution:* Use methylene blue carefully. It will stain most items including skin, clothing and table tops.
7. Examine the slide under a microscope. Look for cells with low power first and then switch to high power for details.
8. Record your observations of epidermal cells by making drawings. Label your drawings with appropriate magnifications. Use your knowledge of the size of the microscopic field to estimate the size of the cells.

Disposal

It is recommended that you consult your local school board and/or municipal regulations for proper disposal methods that may apply before proceeding.

Publication No. 11595
021219

Tips

- This activity is a perfect stimulus to provide additional information on the skin and to discuss the significance of continual shedding of the skin.
- The tape used for this activity should be as sticky as possible and it must be clear—not opaque. Clear, box-sealing tape works well.
- Methylene blue (1% aqueous) or Lugol's iodine stain both work well for staining basic cell structures.

Discussion

There has been concern expressed about the classic activity in which students remove cheek cells from the inside of their mouths. The procedure described in this activity eliminates the potential dangers inherent in collecting cheek cells from the mouth. The cells secured from the wrist will be easy to find. Students may have to examine numerous cells before they find a "nice" cell with nucleus, etc. Patience will yield good results. Students are likely to be amazed at how easy it is to remove cells from the surface of the skin. The simple removal technique illustrates the fact that the skin is continually shed. Microbes and other organisms are shed along with the skin thus helping in the fight against microbe invasion.

Materials for *Human Epidermal Cells* are available from Flinn Scientific Canada, Inc.

Catalogue No.	Description
MJ0075	Methylene Blue Solution, 500 mL
IJ0010	Iodine Solution, Lugol's, 500 mL
MS1121	Flinn Economy Compound Microscope
ML1398	Microscope slides, Glass, Economy Choice
ML1377	Cover slips, Plastic

Consult www.flinnsci.ca or your *Flinn Scientific Canada Catalogue/Reference Manual* for current prices.