# Preventing contamination

Avoidance of contamination in the laboratory requires the use of strict precautions. Among these are decontamination of pipettors, wearing gloves and choosing an appropriate pipette tip.

The importance of these precautions is evident when we consider the extreme sensitivity of modern techniques such as PCR, which allows detection of a single molecule. We must also bear in mind the dangers of radioactivity and the risk of personal contamination from a pathogenic micro-organism.

## Personal exposure

*Prevention*

- Wear a lab coat.
- Wear gloves.
- Wear protective glasses.
- Wear a mask.
- Wipe work bench before and after with an appropriate cleaner for your application (cell culture, radio-active components, pathogenic samples…).
- Work under hood.
- Work behind a radioactivity shield.
- Avoid touching used tips.
- Use unbreakable capillaries and pistons.

# Types of contamination and how to prevent them

## Pipette-to-sample

Contaminated tips or a contaminated pipette will, in turn, contaminate samples.

*Prevention*

- Use sterilized tips and clean or autoclave the parts of your pipette which are in contact with the sample.
- Change the tip after each sample.

## Sample-to-pipette

Contamination can occur if the sample or aerosols from the sample are allowed to enter the body of the pipette.

*Prevention*

- To prevent liquids from running into the pipette body, avoid inclining your pipette excessively and always store the instrument vertically.
- Release the push-button slowly.
- To prevent aerosol contamination, use filter tips with Pipetman or choose a Microman positive-displacement pipette with built-in aerosol barrier.

## Sample-to-sample (also known as sample carry-over)

A portion of sample A can adhere to the inside wall of the tip after sample delivery. The left-over portion of sample A can mix with the next sample (B) and may cause a false test result.

*Prevention*

Change the tip after each sample.