

# Interference in immunoassays

## a brief overview



- A - perfect assay → correct result
- B - nonspecific binding of a labeled detection antibody on blocked surface → false positive result
- C - interfering protein binds detection antibody and prevents binding of the analyte → false negative result
- D - capture antibody binds detection antibody (or label of the detection antibody) → false positive result
- E - cross-linking caused by heterophilic antibodies or HAMAs (Human anti-mouse antibodies); capture antibody is linked with the detection antibody → false positive result
- F - cross-reactivity of a sample protein with capture antibody → false negative result
- G - cross-reactivity of a sample protein with detection antibody → false negative result
- H - cross-reactivity of a sample protein with capture and detection antibody → false positive result
- I - masking of the analyte with a sample protein → false negative result
- J - HAMA binds capture antibody → false negative result
- K - HAMA binds detection antibody → false negative result
- L - binding of the interfering antibodies to the capture antibody → false negative result
- M - binding of the interfering antibodies to the detection antibody → false negative result

Interferences can be classified due to their biochemical reasons and their impact on assay performance.

### 1. Interference caused by antibodies from patient samples

HAMA (human anti-mouse antibodies), HAAA (human anti-animal antibodies), heterophilic antibodies and rheumatoid factors from patient samples.

### 2. Interference caused by endogenous components of the sample

Albumins, complement, lysozyme, fibrinogen,  $\alpha$ -1 Antitrypsin, atypically high lipid-, salt- or sugar concentrations as well as atypical viscosities.

### 3. Interference caused by assay components

Assay components - like fluorescent or enzymatic labels - can cross-react with substances from the sample or change binding properties of the assay antibodies.

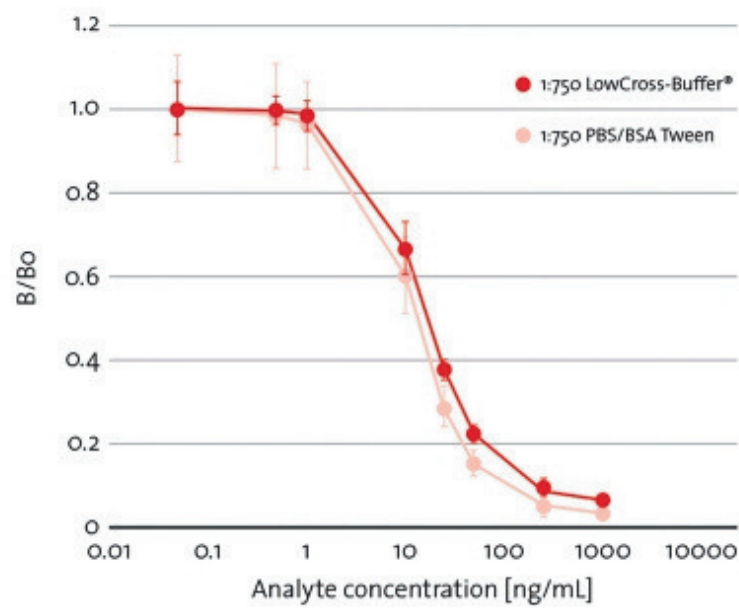
→ All these interferences can lead to false results

## Solutions to solve your interference problem:

### LowCross-Buffer®

Sample and antibody diluent for minimizing nonspecific binding, cross-reactivities and matrix effects in immunoassays.

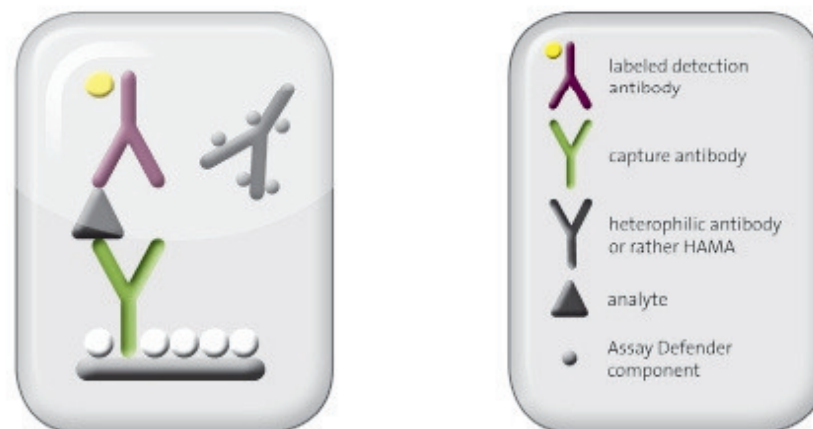
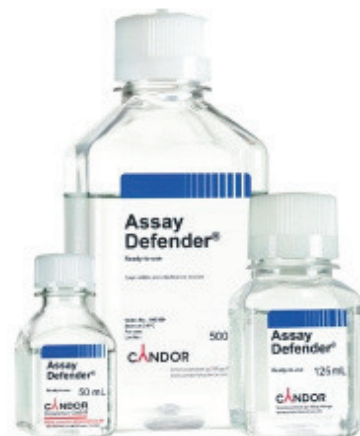
LowCross-Buffer® suppresses the low/medium affinities but keeps the highest affinities untouched at the same time.



**Calibration curve of an ELISA:** High coefficient of variation (error bar) is reduced. Greatly improved precision with LowCross-Buffer®.

### Assay Defender®

Sample diluent for blocking HAMA and other high affinity interfering antibodies. Additionally minimizes nonspecific binding, cross-reactivities and matrix effects in immunoassays based on human or animal body fluids.



Components of Assay Defender® prevent binding of the interfering antibody → correct result



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