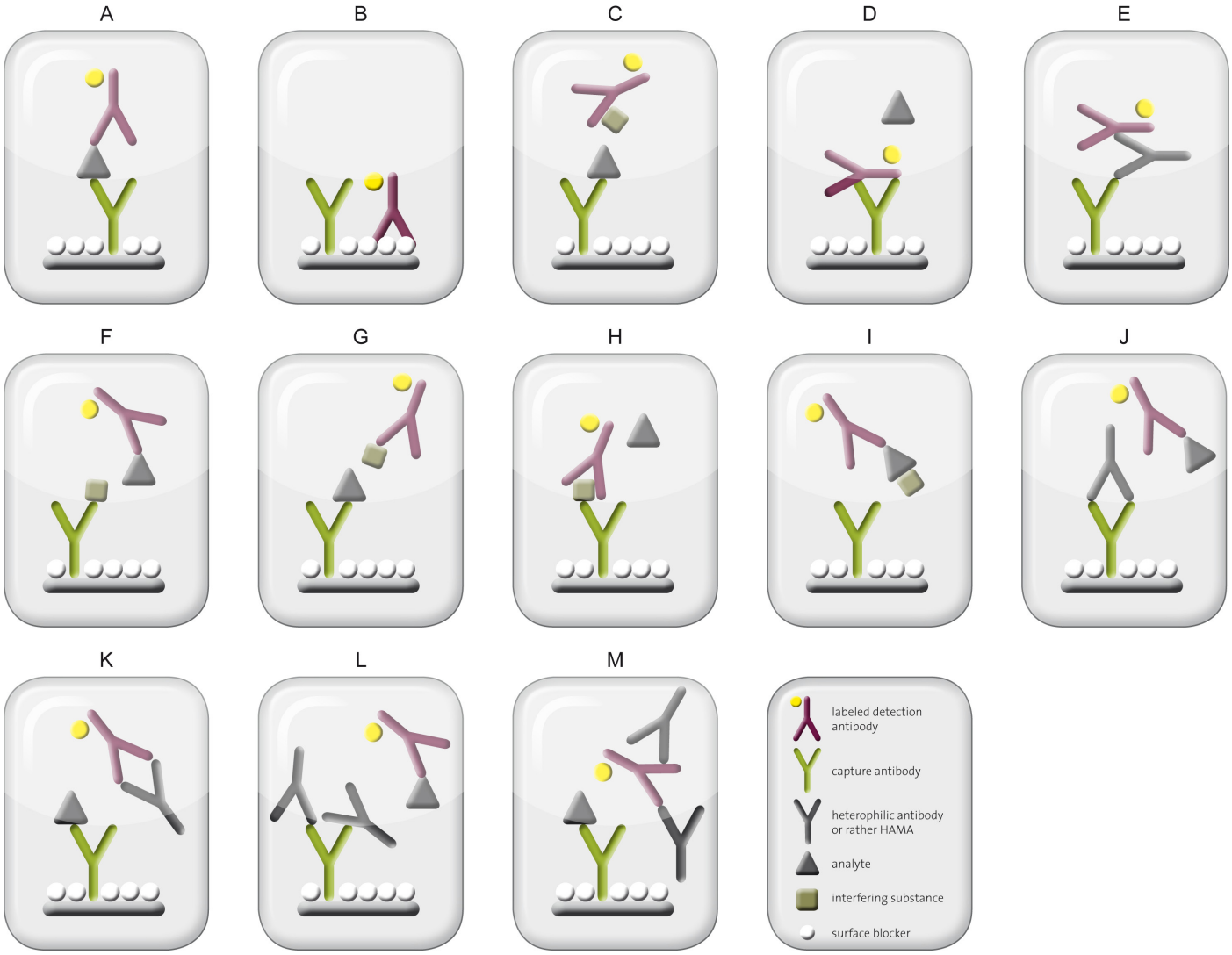
Interference in immunoassays
a brief overview



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

e.g. 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

e.g. albumins, complement, lysozyme, fibrinogen, α-1 Antitrypsin, atypically high lipid-, salt- or sugar concentrations as well as atypical viscosities

3. Interference caused by assay components

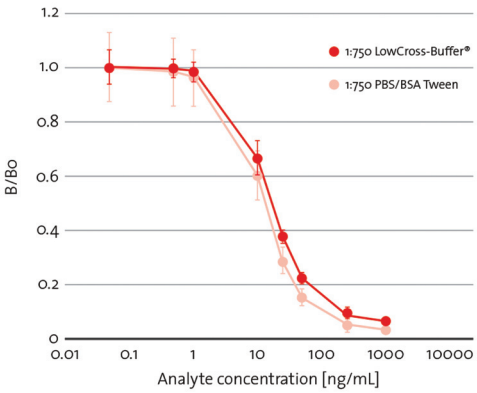
Assay components - like fluorescent or enzymatic labels - can cross-react with substances from the sample or change binding properties of the assay antibodies.

→ **All these interferences can lead to false results**

Solutions to solve your interference problem:

LowCross-Buffer®

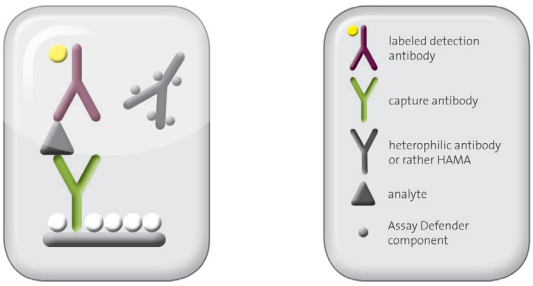
Sample and antibody diluent for minimizing nonspecific binding, cross-reactivities and matrix effects in immunoassays.
LowCross-Buffer® suppresses the low/medium affinities but keeps the highest affinities untouched at the same time.



Calibration curve of an ELISA: *The analyte was diluted 1:750 in PBS/BSA Tween or 1:750 in LowCross-Buffer®. The ELISA with PBS/BSA Tween shows, despite the high dilution factor, a very high coefficient of variation (error bar) due to interference. The precision of the ELISA with LowCross-Buffer®as assay diluent is significantly better.*

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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