Top Anticoagulants, Mechanisms & Usage Recommendations

Choosing the right blood anticoagulant is a critical factor in the success of downstream applications with plasma, platelets, or cells. Certain anticoagulants can have deleterious effects on molecular assays, inhibit specific enzymes, alter cellular morphology, or interfere with coagulation. The anticoagulant mechanism of action directly determines the suitable recommended applications. Utilizing the appropriate anticoagulant will contribute to a more accurate measurement or successful cellular assay.

EDTA

(Ethylenediamine Tetra-acetic acid)
(Di-sodium or Di-potassium)

- Chelating agent
- Irreversibly binds Ca++

RECOMMENDED FOR routine hematology, cell isolations, downstream assays, preservation of cell morphology, and PCR genetic testing

NOT RECOMMENDED FOR coagulation or osmotic fragility

MOLECULAR IMMUNOLOGY

OXALATES

(Potassium, Ammonium, or Sodium)

- Precipitates Ca++ by forming calcium oxalate crystals
- Used with sodium fluoride as glycolytic inhibitor

RECOMMENDED FOR glucose, lactate, pyruvate, and ethanol testing

NOT RECOMMENDED FOR RBC morphology or coagulation

CHEMISTRY

ACD

(Solution A or B)

- Reversibly binds Ca++ by forming calcium citrate complex
- Used for apheresis

RECOMMENDED FOR HLA typing and blood grouping

NOT RECOMMENDED FOR blood count and platelet count

IMMUNOLOGY

HEPARIN

(Lithium, Sodium, or Ammonium)

- Activates anti-thrombin to block coagulation cascade
- Causes leukocyte clumping

RECOMMENDED FOR RBC counts, hemoglobin, osmotic fragility, clinical chemistry, FISH, and karyotyping

NOT RECOMMENDED FOR PCR

CHEMISTRY CYTOGENETIC

CITRATE

(Tri-sodium)

- Reversibly binds Ca++ by forming calcium citrate complex

RECOMMENDED FOR erythrocyte sedimentation rate, prothrombin, d-dimer, and fibrinogen assay

NOT RECOMMENDED FOR blood count and platelet count

COAGULATION

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