



Resident Rotation: Immunohematology Reference Lab (IRL) Module 4: Blood bank testing methods



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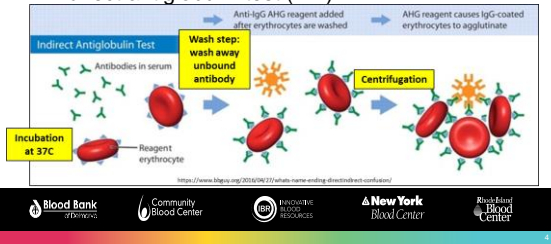
Objectives

- Review the indirect antiglobulin test methodology of tube testing
- Discuss gel column agglutination, and how it is used in blood bank testing
- Discuss the solid phase red cell adherence assay (SPRCA), and how it is used in blood bank testing.



Tube testing:

- Direct agglutination:
 - Cold reacting antibodies
 - IgM
- Indirect antiglobulin test (IAT):



Tube testing: things to consider

- Sample volume required
 - 2 drops of plasma per test (100ul)
- Supplies (tubes/pipets) economical
 - Reagents VERY expensive
- Competence/skill of technologists
 - Subjective grading
- Can infer IgM (immediate spin) and IgG (IAT) reactivity
- Gold Standard

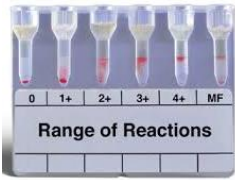


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Gel testing



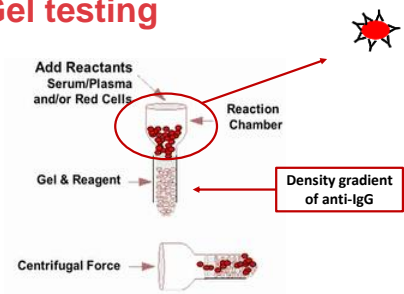
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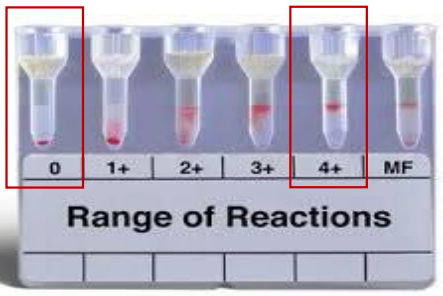
<http://www.medwv.com/med/blood-centrifuge/orthoclinical-diagnostics/id-mtx/58910.model-spec>



Gel testing



Grading gel reactions



Gel testing: things to consider

- Sample volume small: 25ul of plasma per test
- Use of 0.8% cells suspension
- Very sensitive testing
- Easy set-up, less subjective reading
- Can be automated
- No wash step



Gel testing: video

Web Object

Address:
<http://www.youtube.com/embed/5Gq8ynBqfv8>



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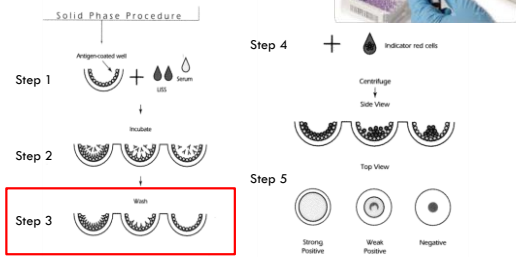
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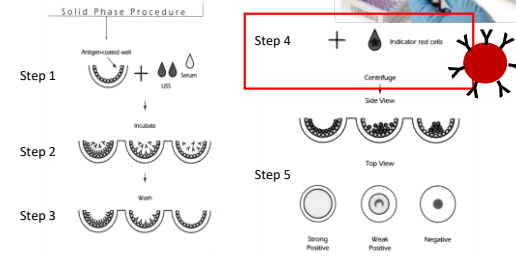
Solid Phase Testing



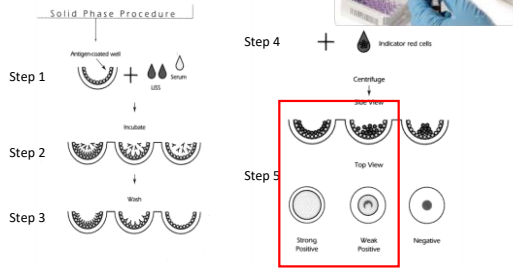
Solid Phase Testing



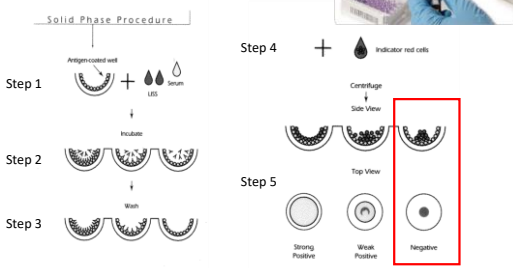
Solid Phase Testing



Solid Phase Testing



Solid Phase Testing



Solid Phase Reaction Grading

• Total effacement of well = 4+

• Centrifuged pellet of cells at the center of the well = 0

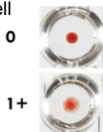
(Interestingly, this is opposite of tube testing grading)





Solid Phase: things to consider

- Sample volume required: 1 drop (50ul)
- Must coat wells with cells prior to testing (or buy commercially prepared wells)
- Sensitive
 - Detects warm autoantibodies particularly well
- Subjective grading
- Can be automated



Solid Phase testing video



So... which is better?

- IRL uses tube testing primarily
- Many hospitals prefer automated platforms (gel or solid phase)
- **How to decide on one primary method:**
 - Consider tech time and competency
 - Sample volume requirements
 - Cost
 - Automation possibility