CLAIMS

1. A test device for determining the presence of a first ligand in a liquid sample, comprising:

a) a first sorbent strip having a first location for receiving a solution and defining a first migration path;

b) a marker conjugate adapted to move along said first migration path and bind to said first ligand;

c) a second sorbent strip distinct from said first sorbent strip and having a second location for receiving the liquid sample and defining a second migration path;

d) depletion molecules located on or in said second migration path wherein said depletion molecules include an immobilized ligand-binding element adapted to specifically bind to second ligands that are different from but related to said first ligand; and

e) a test site located on or in at least one of said first sorbent strip and said second sorbent strip, said test site having an immobilized first ligand binding mechanism for said first ligand, and said first and second sorbent strips touching each other at the test site location, wherein said second location is removed from said test site such that sample applied to said second location requires time to migrate to said test site and does not immediately wet said test site.

2. A test device according to claim 1, further comprising:

a housing defining a first opening adjacent said first location, a second opening adjacent said second location, and a window adjacent said test site through which said test site is viewable.

3. A test device according to either of claims 1 or 2, wherein:

said ligand binding mechanism of said test site is an antigen or antibody for said first ligand, and said marker conjugate comprises an antigen or antibody for the first ligand and a marker coupled to the antigen or antibody.

4. A test device according to claim 3, wherein:

said marker is a colored marker viewable in the visible spectrum.

5. A test device according to any previous claim, wherein:

said first sorbent strip and said second sorbent strip are arranged in a "T"

configuration.

6. A test device according to any previous claim, wherein:

said depletion molecules comprises a conjugate including an antigen or antibody for the second ligand and particles that are not readily seen by the human eye against a background of said test site.

7. A test device according to claim 6, wherein:

said particles comprise white latex.

8. A test device according to any previous claim, wherein:

said first sorbent strip has a first pore size and said second sorbent strip has a second pore size.

9. A test device according to claim 8, wherein:

said second pore size is larger than said first pore size.

10. A test device according to claim 2, wherein:

at least one of said first sorbent strip and said second sorbent strip includes a control site, and either said window is sized to permit viewing of said control site or a second window is provided in said housing to permit viewing of said control site.

11. A test device according to any previous claim, further comprising:

buffer solution, wherein said marker conjugate is disposed on or in said first migration path and said buffer solution is adapted to carry said marker conjugate to said test site.

12. A test device according to any previous claim, wherein:

said first sorbent strip includes a first membrane and a first backing and said second sorbent strip includes a second membrane and a second backing, and said first sorbent strip and said second sorbent strip are arranged such that said first membrane is in contact with said second membrane.

13. A test device according to claim 12, further comprising:

a first adhesive backing card underlying or overlying said first sorbent strip, and

a second adhesive backing card underlying or overlying said second sorbent strip.

14. A test device according to any previous claim, wherein:

said first ligand is a first flu antibody, and

said second ligand is a second flu antibody different than said first flu antibody.

15. A test device according to claim 14, wherein:

said first flu antibody is a pandemic flu antibody; and

said second flu antibody is a non-pandemic flu antibody.

16. A method for testing a sample for the presence of a first ligand, comprising:

a) obtaining a test device having a first sorbent strip having a first location for receiving a solution and defining a first migration path, a marker conjugate located on or in said first migration path, said marker conjugate adapted to bind to said first ligand, a second sorbent strip distinct from said first sorbent strip and having a second location for receiving the liquid sample and defining a second migration path, depletion molecules located on or in said second migration path wherein said depletion molecules include an immobilized ligand-binding element adapted to specifically bind to second ligands that are different from but related to said first ligand, and a test site located on or in one at least one of said first sorbent strip and said second sorbent strip, said test site having an immobilized ligand-binding mechanism for said first ligand, and said first and second sorbent strips touching each other at the test site location, wherein said second location is removed from said test site such that sample applied to said second location requires time to migrate to said test site and does not immediately wet said test site;

b) applying the sample to said second location;

c) after said applying the sample, applying a solution to the first location to cause said marker conjugate to migrate along said first migration path; and

d) inspecting said test site to determine an indication the presence or lack thereof of the first ligand in the sample.

17. A method according to claim 16, wherein:

said depletion molecules comprises a conjugate including an antigen or antibody for the second ligand and particles that are not readily seen by the human eye against a back-ground of said test site.

18. A method according to either of claims 16 or 17, wherein:

said test device has a housing defining a first opening adjacent said first location, a second opening adjacent said second location, and a window adjacent said test site through which said test site is viewable,

said applying the sample comprises depositing the sample through said second opening to said second location, said applying the solution comprises depositing the solution through said first opening to said first location, and

said inspecting comprises inspecting through said window.

19. A method according to any of claims 16-18, wherein:

said first ligand is a first flu antibody, and

said second ligand is a second flu antibody different than said first flu antibody.

20. A method according to claim 19, wherein:

said first flu antibody is a pandemic flu antibody; and

said second flu antibody is a non-pandemic flu antibody.

21. A method for testing a sample for the presence of a first ligand, comprising:

a) combining the sample with depletion molecules to obtain a mixture, said depletion molecules comprising molecules chosen to bind to analyte having a second ligand different from but related to said first ligand, thereby generating bound second ligand and a remainder;

b) applying at least the remainder to an immunoassay device; and

c) inspecting the immunnoassay device to determine the presence of the first ligand.

22. A method according to claim 21, wherein:

said depletion molecules comprise a conjugate of said second ligand with a larger particle.

23. A method according to claim 22, wherein:

said larger particle is one of a latex particle and a colloid.

24. A method according to either of claims 22 or 23, wherein:

said larger particle is a colored latex.

25. A method according to any of claims 22-24, further comprising:

generating said conjugate by obtaining freeze dried latex conjugate and a diluent and mixing them together.

26. A method according to any of claims 21-24, further comprising:

filtering said mixture to substantially remove said depletion molecules and bound second ligand prior to said applying.

27. A method according to any of claims 21-26, wherein:

said immunoassay device has a first sorbent strip having a first location for receiving a solution and defining a first migration path, a marker conjugate located on or in said first migration path, said marker conjugate adapted to bind to said first ligand, and a second sorbent strip distinct from said first sorbent strip and having a second location for receiving said remainder and defining a second migration path, and a test site located on or in one at least one of said first sorbent strip and said second sorbent strip, said test site having an immobilized ligand-binding mechanism for said first ligand, and said first and second sorbent strips touching each other at the test site location, wherein said second location is removed from said test site such that remainder applied to said second location requires time to migrate to said test site and does not immediately wet said test site.

28. A method according to claim 27, wherein:

said immunoassay device has a first sorbent strip having a first location for receiving a solution and defining a first migration path, a marker conjugate located on or in said first migration path, said marker conjugate adapted to bind to an interim binding agent, and a second sorbent strip distinct from said first sorbent strip and having a second location for receiving said remainder and defining a second migration path, a second conjugate located on or in said second migration path, said second conjugate including a first-ligand-binding molecule and said interim binding agent, and a test site located on or in one at least one of said first sorbent strip and said second sorbent strip, said test site having an immobilized ligand-binding mechanism for said first ligand, and said first and second sorbent strips touching each other at the test site location, wherein said second location is removed from said test site such that remainder applied to said second location requires time to migrate to said test site and does not immediately wet said test site.

29. A method according to claim 28, wherein:

said interim binding agent is biotin and said marker conjugate comprises at least one of streptavidin and an anti-biotin antibody.

30. A method according to claim 27, wherein:

said immunoassay device has a first sorbent strip having a first location for receiving a solution and defining a first migration path, a marker conjugate located on or in said first migration path, said marker conjugate having a first interim binding agent of a first pair adapted to bind to a second interim binding agent of said first pair, and a second sorbent strip distinct from said first sorbent strip and having a second location for receiving said remainder and defining a second migration path, second molecules and a second conjugate located on or in said second migration path, said second molecules including a first-ligand-binding molecule and a first interim binding agent of a second pair, and said second conjugate including particles having bound thereto a second interim binding agent of said second pair and a second interim binding agent of said first pair, and a test site located on or in one at least one of said first sorbent strip and said second sorbent strip, said test site having an immobilized ligand-binding mechanism for said first ligand, and said first and second sorbent strips touching each other at the test site location, wherein said second location is removed from said test site such that remainder applied to said second location requires time to migrate to said test site and does not immediately wet said test site.

31. A method according to claim 30, wherein:

said first interim binding agent of said second pair is biotin, said second interim binding agent of said second pair is streptavidin, said first interim binding agent of said first pair is anti-FITC antibody, and said second interim binding agent of said first pair is FITC antigen.

32. A method according to claim 31, wherein:

said particles of said second conjugate comprise white latex particles.

33. A method according to claim 32, wherein:

said first ligand is HIV p24 ligand, and said first-ligand-binding molecule of said second molecules are HIV p24 molecules.

34. A test device for determining the presence of a first ligand in a liquid sample, comprising:

a) a first sorbent strip having a first location for receiving a solution and defining a first migration path;

b) a marker conjugate located on or in and adapted to move along said first migration path, said marker conjugate having a first interim binding agent of a first pair adapted to bind to a second interim binding agent of said first pair;

c) a second sorbent strip distinct from said first sorbent strip and having a second location for receiving the liquid sample and defining a second migration path;

d) first molecules located on or in and adapted to move along said second migration path, said first molecules including a first-ligand-binding molecule and a first interim binding agent of a second pair;

e) a second conjugate located on or in and adapted to move along said second migration path, said second conjugate including particles having bound thereto a second interim binding agent of said second pair and a second interim binding agent of said first pair,

f) a test site located on or in one at least one of said first sorbent strip and said second sorbent strip, said test site having an immobilized first-ligand-binding mechanism for said first ligand, and said first and second sorbent strips touching each other at the test site location, wherein said second location is removed from said test site such that the liquid sample applied to said second location requires time to migrate to said test site and does not immediately wet said test site.

35. A test device according to claim 34, wherein:

said first interim binding agent of said second pair is biotin, said second interim binding agent of said second pair is streptavidin, said first interim binding agent of said first pair is anti-FITC antibody, and said second interim binding agent of said first pair is FITC antigen.

36. A test device according to either of claims 34 or 35, wherein:

said particles of said second conjugate comprise white latex particles.

37. A test device according to any of claims 34-36 wherein:

said first ligand is HIV p24 ligand, and said first-ligand-binding molecule of said second molecules are HIV p24 molecules.

38. A lateral flow test device for determining the presence of a first ligand in a liquid sample, comprising:

a) a sorbent strip having a first location for receiving a solution and defining a migration path;

b) a marker conjugate adapted to move along said migration path and bind to said first ligand;

c) depletion molecules located on or in said migration path wherein said depletion molecules include an immobilized ligand-binding element adapted to bind to second ligands that are different from but related to said first ligand; and

d) a test site located on or in said sorbent strip, said test site having an immobilized first ligand binding mechanism for said first ligand.

39. A lateral flow test device according to claim 38, wherein:

said depletion molecules comprise a conjugate including an antigen or antibody for the second ligand and particles that are not readily seen by the human eye against a background of said test site.

40. A lateral flow test device according to either of claims 38 or 39, wherein:

said particles comprise white latex.

41. A method for testing a sample for the presence of a first ligand, comprising:

a) providing a lateral flow test device having a sorbent strip with a location for receiving a test sample, a marker conjugate, and a test site having an immobilized first ligand binding mechanism for said first ligand;

b) depleting from said sample second ligand that is different from but related to said first ligand before said second ligand reaches said test site.

42. A method according to claim 41, wherein:

said depleting comprises bringing said second ligand into contact with a depletion conjugate adapted to bind to said second ligand.

43. A method according to claim 42, wherein:

said depletion conjugate comprises white latex.