INTRODUCTION

The Immunology & Serology section provides services for Autoimmune serology, Allergen-Specific IgE serology, Infectious Diseases serology, Sexually Transmitted Diseases (STD) serology and STD culture.

For cultures for *Mycoplasma* and *Ureaplasma* special transport media should be requested from the laboratory (Tel: 6321 4961) in preparation for taking the specimen, which should be inoculated into the media. Note that swabs may be toxic to the organisms, and that swabs should be swirled and squeezed against the side of the container and then discarded. They should never be left in the container. In the event that immediate transportation is not possible, specimens can be kept at 4 – 8°C for short periods of time. For *Neisseria gonorrhoeae* (GC) and *Haemophilus ducreyi* cultures, specimens should be streaked onto special agar plates available from the laboratory.

For serological tests for toxoplasmosis and legionellosis, paired sera (acute and convalescent; at least two weeks apart) should be sent. However, antibodies to some infections may take a longer time to develop (e.g. *Legionella* infections), such specimens should be taken a month to 6 weeks apart. Results for the first specimen are always despatched when ready, and this specimen is kept so that it can be run in parallel with the second specimen when it arrives. Interpretation for single specimens are always presumptive and do not carry the same weight as a rise in titre between the two specimens.

For further inquiries on tests and interpretation of results, laboratory users should call Client Services, who will direct the inquiry to the technical and professional staff in the Section.

Stat results are only available for syphilis screening test (VDRL/RPR) for potential organ donors.

Turnaround time is based on the number of working days.
ALPHABETICAL TEST LISTING – IMMUNOLOGY

ALLERGEN-SPECIFIC IgE ANTIBODY – FOOD PANEL
Specimen required : 5 mL plain blood for each panel
Method : UniCAP (ImmunoCAP)
Allergens : Cow’s milk, egg white, soya bean, peanut, hazelnut, wheat flour, shrimp, lobster, crab, clam, squid, cod, chicken, corn, potato, rice, baker’s yeast (Saccharomyces cerevisiae)
Test results : Results are semi-quantitative, reported as classes 0 to 6 (from no specific antibodies detected, to very high antibody titre).
Turnaround time : Range 2 – 4 days
Day(s) test set up : Monday to Friday

ALLERGEN-SPECIFIC IgE ANTIBODY – BEEF
Specimen required : 3 mL plain blood
Method : UniCAP (ImmunoCAP)
Test results : Result is semi-quantitative, reported as classes 0 to 6 (from no specific antibodies detected, to very high antibody titre).
Turnaround time : Range 2 – 4 days
Day(s) test set up : Monday to Friday

ALLERGEN-SPECIFIC IgE ANTIBODY – PORK
Specimen required : 3 mL plain blood
Method : UniCAP (ImmunoCAP)
Test results : Result is semi-quantitative, reported as classes 0 to 6 (from no specific antibodies detected, to very high antibody titre).
Turnaround time : Range 2 – 4 days
Day(s) test set up : Monday to Friday

ALLERGEN-SPECIFIC IgE ANTIBODY – RESPIRATORY PANEL
Specimen required : 5 mL plain blood for each panel
Method : UniCAP (ImmunoCAP)
Allergens : Pteronyssinus mite, Dermatophagoides farinae, Blomia tropicalis, American cockroach, cat hair, dog epithelium, Alternaria, Aspergillus fumigatus, Bermuda grass, Bahia grass, Timothy grass, mugwort, common ragweed, Acacia, Australian pine, oil palm, Candida albicans, Cladosporium herbarum, Curvularia lunata, Penicillium notatum, Trichophyton mentagrophytes, Helminthosporium, Mucor, Stemphylium
Test results : Results are semi-quantitative, reported as classes 0 to 6 (from no specific antibodies detected, to very high antibody titre).
Turnaround time : Range 2 – 4 days
Day(s) test set up : Monday to Friday
ANTI-CARDIOLIPIN ANTIBODY IgG
Specimen required: 3 mL plain blood
Method: Enzyme Immunoassay
Test results: Reported as High Positive, Low to Medium Positive, Indeterminate, or Negative. Any values above the cut-off are reported as numerical figures in GPL units/mL.
Turnaround time: Range 2 –7 days
Day(s) test set up: Batch tested, once/week

ANTI-CARDIOLIPIN ANTIBODY IgM
Specimen required: 3 mL plain blood
Method: Enzyme Immunoassay
Test results: Reported as High Positive, Low to Medium Positive, Indeterminate, or Negative. Any values above the cut-off are reported as numerical figures in MPL units/mL.
Turnaround time: Range 2 –7 days
Day(s) test set up: Batch tested, once/week

ANTI-CYCCLIC CITRULLINATED PEPTIDE (CCP) ANTIBODY
Specimen required: 3 mL plain blood
Method: Fluoroenzymeimmunoassay
Test results: Reported as Positive, Indeterminate or Negative. Any values above the cut-off are reported as numerical figures in U/mL.
Turnaround time: Range 1 – 3 days
Day(s) test set up: Monday – Friday

ANTI-DEOXYRIBONUCLEIC ACID, DOUBLE STRANDED (DS-DNA)
Specimen required: 3 mL plain blood
Method: Fluoroenzymeimmunoassay
Test results: Reported as Positive, Indeterminate or Negative. Any values above the cut-off are reported as numerical figures in IU/mL.
Turnaround time: Range 1 – 3 days
Day(s) test set up: Monday – Friday

ANTI-D0UBLE STRAND DNA ANTIBODY (CRITHIDIA LUCILIAE SUBSTRATE)
Specimen required: 3 mL plain blood
Method: Immunofluorescence
Test results: Screening dilution is 1:10. Reported as Positive or Negative.
Turnaround time: Range 1 – 2 days
Day(s) test set up: Monday – Friday
SECTION 4: SAMPLE COLLECTION & HANDLING – SPECIAL INSTRUCTIONS & LAB TESTS

**ANTI-ENDOMYSIUM ANTIBODY & ANTI-GLIADIN ANTIBODY (IgA)**
- Specimen required: 3 mL plain blood
- Method: Immunofluorescence
- Test results: Screening dilution is 1:10. Reported as Positive or Negative for
  - Anti-endomysium (IgA)
  - Anti-gliadin (IgA)
- Turnaround time: Range 2 – 3 days
- Day(s) test set up: Monday – Friday

**ANTI-EXTRACTABLE NUCLEAR ANTIGENS (ENA) – SCREENING**
- Specimen required: 3 mL plain blood
- Method: Enzyme Immunoassay
- Test results: Reported as Positive or Negative for ENA
  - If ENA screen is positive, sending the blood for ENA Profile is suggested.
- Turnaround time: Range 2 – 7 days
- Day(s) test set up: Batch tested, once/week

**ANTI-EXTRACTABLE NUCLEAR ANTIGENS (ENA)-PROFILE**
- Specimen required: 3 mL plain blood
- Method: Enzyme Immunoassay
- Test results: Reported as Positive or Negative for
  - Anti-Sm
  - Anti-RNP
  - Anti-SSA (Ro)
  - Anti-SSB (La)
  - Anti-Scl-70
  - Anti-Jo-1
- Turnaround time: Range 2 – 7 days
- Day(s) test set up: Batch tested, once/week

**ANTI-GLIADIN ANTIBODY (IgA)**
- See Anti-Endomysium Antibody & Anti-Gliadin Antibody (IgA)

**ANTI-GLOMERULAR BASEMENT MEMBRANE (ANTI-GBM)**
- Specimen required: 3 mL plain blood
- Method: Enzyme Immunoassay
- Test results: Reported as Positive or Negative. Any values above cut-off reported as numerical figures in RU/mL
- Turnaround time: Range 1 – 3 days
- Day(s) test set up: Monday – Friday

**ANTI-INTRINSIC FACTOR**
- Specimen required: 3 mL plain blood
- Method: Immunofluorescence
- Test results: Screening dilution is 1:10. Reported as Positive or Negative
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**ANTI-ISLET CELL**
- Specimen required: 3 mL plain blood
- Method: Immunofluorescence
- Test results: Screening dilution is 1:10. Reported as Positive or Negative
- Turnaround time: Range 2 – 5 days
- Day(s) test set up: Monday – Thursday

**ANTI-LC-1**
See Anti-Liver Antibodies Profile

**ANTI-LIVER ANTIBODIES PROFILE**
- Specimen required: 3 mL plain blood
- Method: Immuno Blot
- Test results: Reported as Detected or Not Detected for
  - M2 (pyruvate-dehydrogenase complex)
  - LKM-1 (cytochrome P450 II D6)
  - LC-1 (formiminotransferase-cyclodeaminase)
  - SLA/LP (soluble liver antigen/liver-pancreas antigen)
- Turnaround time: Range 1 – 3 days
- Day(s) test set up: Monday, Wednesday and Friday

**ANTIBODIES TO LIVER, KIDNEY MICROSONAL ANTIGENS (ANTI-LKM)**
See Anti-Liver Antibodies Profile

**ANTI-MITOCHONDRIAL ANTIBODY**
See Anti-Liver Antibodies Profile

**ANTI-NEUTROPHIL CYTOPLASMIC ANTIBODY (ANCA)**
- Specimen required: 3 mL plain blood
- Method: Immunofluorescence
- Test results: Screening dilution is 1:10.
  - Results reported as Negative; or Positive for P-ANCA, C-ANCA, Atypical ANCA, Atypical P-ANCA or Atypical C-ANCA.
  - C-ANCA positive cases will be diluted up to 1:40 for the first sample. The follow-up sample(s) will be diluted to end-point in parallel with its previous sample for the monitoring of treatment.
  - Results are reported as Inconclusive for P-ANCA if anti-nuclear antibody is detected, as P-ANCA or atypical P-ANCA cannot be excluded.
  - For Inconclusive or Positive results, suggest anti-MPO and anti-PR3 testing.
- Turnaround time: Range 2 – 4 days
- Day(s) test set up: Monday – Friday
**ANTI-MPO AND ANTI-PR3 ANTIBODIES (ANCA)**

- Specimen required: 3 mL plain blood
- Method: Enzyme Immunoassay
- Test results: Reported as Positive or Negative for
  - Anti-MPO
  - Anti-PR3
- Turnaround time: Range 1 – 7 days
- Day(s) test set up: Batch tested, once/week

**ANTI-NUCLEAR ANTIBODY (ANA)**

- Specimen required: 3 mL plain blood
- Method: Immunofluorescence
- Test results: Starting dilution is 1:100. Serum worked-up in doubling dilutions from 1:100 to 1:800. Results reported as Positive or Negative. Pattern of fluorescence and titre are reported.
- Turnaround time: Range 2 – 4 days
- Day(s) test set up: Monday – Friday

**ANTI-PARIEDAL CELL ANTIBODY**

- Specimen required: 3 mL plain blood
- Method: Immunofluorescence
- Test results: Screening dilution is 1:10. Reported as Positive or Negative
- Turnaround time: Range 2 – 3 days
- Day(s) test set up: Monday – Friday

**ANTI-SACCHAROMYCES CEREVISIAE ANTIBODY (ASCA) IgA AND IgG**

- Specimen required: 3 mL plain blood
- Method: Enzyme Immunoassay
- Test results: Reported as Positive, Indeterminate or Negative. Positive and Indeterminate results reported with values and interpretation.
- Turnaround time: Range 2 – 4 days
- Day(s) test set up: Monday – Friday

**ANTI-SKELETAL MUSCLE ANTIBODY**

- Specimen required: 3 mL plain blood
- Method: Immunofluorescence
- Test results: Screening dilution is 1:100. Reported as Positive or Negative
- Turnaround time: Range 2 – 3 days
- Day(s) test set up: Monday – Friday

**ANTI-SKIN ANTIBODY (SERUM)**

- Specimen required: 3 mL plain blood
- Method: Immunofluorescence
- Test results: Starting dilution is 1:10.
Reported as Positive or Negative for Anti basement membrane antibody and Anti intercellular antibody. Anti intercellular antibody positive samples will be diluted only at 1:10 for the first sample. Follow-up sample (s) will be diluted to end-point in parallel with its previous sample, for the monitoring of treatment.

Turnaround time : Range 2 – 4 days
Day(s) test set up : Monday – Friday

**ANTI-SLA/LP ANTIBODY**

See Anti-Liver Antibodies Profile

**ANTI-SMOOTH MUSCLE ANTIBODY**

Specimen required : 3 mL plain blood
Method : Immunofluorescence
Test results : Starting dilution is 1:100.
          : Serum worked-up in doubling dilutions from 1:100 to 1:400. Results reported as Negative, or Positive with titre
Turnaround time : Range 2 – 4 days
Day(s) test set up : Monday – Friday

**ANTI-THYROGLOBULIN ANTIBODY**

Specimen required : 3 mL plain blood
Method : Particle agglutination
Test results : Serum worked-up in four-fold dilutions from 1:100 to 1:102400. Results reported as Negative, or Positive with titre
Turnaround time : Range 2 – 4 days
Day(s) test set up : Monday, Wednesday and Friday

**ANTI-THYROID MICROsomal ANTIBODY**

Specimen required : 3 mL plain blood
Method : Particle agglutination
Test results : Serum worked-up in four-fold dilutions from 1:100 to 1:102400. Results reported as Negative, or Positive with titre
Turnaround time : Range 2 – 4 days
Day(s) test set up : Monday, Wednesday and Friday

**TOTAL SERUM COMPLEMENT (CAE)**

Specimen required : 3 mL plain blood. Send blood tube immediately to the laboratory at 2 – 8°C with an ice pack. If unable to send to the laboratory within 4 hours, separate the serum first (the serum may be kept at 2 – 8°C in the refrigerator while awaiting despatch) and then send to the laboratory with an ice pack.
Method : Enzyme Immunoassay
Test results : Normal values: 60 – 156 CAE Units
Turnaround time : Range 2 – 7 days
Day(s) test set up : Batch tested, once/week
ALPHABETICAL TEST LISTING – SEXUALLY TRANSMITTED DISEASES (STD)

ANTIBODY DETECTION

**LIA TP CONFIRMATION IgG OR IgM, BLOOD**
- Specimen required: 3 mL plain blood
- Method: Line Immunoassay
- Test results: Reported as Negative, Indeterminate or Positive. Assay used for confirmation of syphilis infection
- Turnaround time: Range 2 – 8 days
- Day(s) Test Set Up: Monday

**LIA TP CONFIRMATION IgG, CEREBRO SPINAL FLUID (CSF)**
- Specimen required: 1 mL CSF. Blood stained specimens are unsuitable.
- Method: Line Immunoassay
- Test results: Reported as Negative, Indeterminate or Positive. Assay used for confirmation of syphilis infection.
- Turnaround time: Range 2 – 8 days
- Day(s) Test Set Up: Monday

**TREPONEMA PALLIDUM PARTICLE AGGLUTINATION (TPPA)**
- Specimen required: 3 mL plain blood
- Method: Particle agglutination
- Test results: Reported as Non-reactive, Indeterminate or Reactive. Assay used for confirmation of syphilis infection.
- Turnaround time: Range 1 – 3 days
- Day(s) Test Set Up: Monday – Friday

**VENEREAL DISEASE RESEARCH LABORATORY TEST (VDRL – BLOOD)**
- Specimen required: 3 mL plain blood
- Method: Micro flocculation
- Test results: VDRL is a screening test for treponemal infection. The test is reported as Non-reactive, Weakly Reactive or Reactive. Reactive values are given with dilution factor in brackets. Reactive values should be confirmed by LIA TP Confirmation test or TPPA.
- Turnaround time: Range 1 – 3 days
- Day(s) Test Set Up: Monday – Friday

**VENEREAL DISEASE RESEARCH LABORATORY TEST (VDRL – CSF)**
- Specimen required: 1 mL clear CSF
- Method: Micro flocculation
- Test results: Results reported as Non-reactive or Reactive. Useful in the diagnosis of neurosyphilis. Please note that blood stained specimens are unsuitable for the test, as antibodies detected may be from blood.
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Turnaround time : Range 1 – 3 days
Day(s) Test Set Up : Monday – Friday

DETECTION BY CULTURE

CHANCROID (HAEMOPHILUS DUCREYI) CULTURE

Specimen required : Swab from genital ulcers, bubo aspirates and cervical swabs must be inoculated directly onto culture plates in the form of a “Z” at the bedside, the plates must be despatched to the laboratory as soon as possible. Culture plates can be obtained from the laboratory on request.

Method : Culture
Test results : Reported as Haemophilus ducreyi Isolated or Not Isolated
Turnaround time : Range 5 – 7 days
Day(s) Test Set Up : Monday – Saturday

GONOCOCCUS (NEISSERIA GONORRHOEAE) CULTURE

Specimen required : Specimen collection from specific sites:
- Endocervix*: Collect endocervical specimens after inserting a speculum. Wipe away the cervical mucus with a cotton ball before taking the endocervical specimen.
- Urethra*: Collect the urethral specimen at least one hour after the patient has urinated. If no discharge is present obtain the specimen by scraping the mucosal lining of the urethra. Anorectal*: Collect anorectal swabs.
- Oropharynx*: Swab from the posterior pharynx and the tonsillar crypts. Conjunctiva*: In infants with conjunctivitis collect swab from the conjunctiva.
- Specimen swabs are to be inoculated onto GC agar plates in the form of a “Z” at the bedside.
- Bartholin gland: Drain pus or fluid, submit in a sterile container. Skin lesions: A punch biopsy from the lesion is preferable to material aspirated from the lesion, submit in a sterile container. Joint fluid: Aspirate fluid from infected joints and send to the laboratory in a sterile container or inoculate into Anaerobic blood culture media. Blood Specimens: Inoculate 10ml blood into a Anaerobic blood culture bottle. Advisable to send 2 sets of blood culture bottles.

All samples should reach the laboratory within two hours of collection. When a delay in the transport of samples for GC culture cannot be avoided, keep the plates at room temperature or 35°C in a candle jar (please see how to set up a candle jar) and despatch to the laboratory as soon as possible. Do not keep any samples in the refrigerator.

Method : Culture
Test results: Reported as *Neisseria gonorrhoeae* isolated or not isolated.

Turnaround time: Range 3 – 5 days for urogenital cultures. Range 5 – 10 days for samples from sterile sites.

Day(s) Test Set Up: Monday – Saturday.

How to set up a candle jar:
(a) Use a big tin that can be closed tightly.
(b) Wet a clean tissue paper with tap water to humidify atmosphere. Place it next to the plate(s) or underneath the plate.
(c) The candle that is used in a candle jar should be thick, white, odourless, and smokeless because the burning of coloured and scented candles may produce substances that are toxic to gonococci. Light the candle and place it on the stack of inverted agar plates with enough distance from the lid of the container, or place it next to the agar plates.
(d) Close the lid carefully and do not move the jar for 10 minutes.
(e) A properly burning candle in a closed jar will utilize oxygen and produce a 3% CO\textsubscript{2} atmosphere, and humidity will be provided by the wet tissue paper.

Note: Do not place inoculated plates/media in the refrigerator. Leave at room temperature if no incubators are available.

**MYCOPLASMA PNEUMONIAE PCR**
(See Molecular Lab)

**MYCOPLASMA PNEUMONIAE SEROLOGY**
(See Virology Lab)

**MYCOPLASMA HOMINIS CULTURE**

Specimen required:

- **Urogenital samples:** Urethral swabs, prostatic secretions, semen, urinary calculi, cervical swabs, high vaginal swabs, endometrial tissue, tubal samples, fluid from the pouch of Douglas. Urine samples are not suitable.
- **Respiratory samples:** Nasopharyngeal, throat and endotracheal secretions.
- **Samples from sterile sites:** Blood, CSF, joint fluid and fluid or tissue from other sterile sites.
- **Swabs:** When swabs are obtained from patients, care should be taken to sample as many cells as possible, since mycoplasmas are cell-associated. Special mycoplasma transport media should be requested from the laboratory (Tel: 63214961) in preparation for taking the specimen.
which should be inoculated into the media. As the swabsticks may be toxic to the mycoplasmas, the swabs should be swirled and squeezed against the side of the container and then discarded. They should never be left in the container.

**Tissue and fluid from all sites:**
Small pieces of tissue (< 5 g) and small volumes (< 1 mL) of fluid/pus, should be sent in the mycoplasma transport media to ensure viability of the organism. Large amounts of such samples may be sent in plain, sterile containers.

**Blood:**
10 mL of blood obtained aseptically should be inoculated into an Anaerobic blood culture bottle commonly available in the wards.

All samples should be despatched to the laboratory as soon as possible. Specimens must be held at 4°C (refrigerated) if there is a delay for a few hours in transporting the specimen.

**Method**: Culture

**Test results**: Reported as *Mycoplasma hominis* Isolated or Not Isolated

**Turnaround time**: Range 3 to 11 days

**Day(s) Test Set Up**: Monday – Saturday

**UREAPLASMA SPECIES CULTURE**
Specimen required: Specimen sources and transport requirements are the same as for *MYCOPLASMA HOMINIS CULTURE.*

**Method**: Culture

**Test results**: Reported as *Ureaplasma spp* Isolated or Not Isolated

**Turnaround time**: Same as for *Mycoplasma hominis*

**Day(s) Test Set Up**: Monday – Saturday

**ANTIGEN DETECTION**

**CHLAMYDIA TRACHOMATIS ANTIGEN DETECTION (DIF)**
Specimen required: Chlamydia are intracellular organisms that infect epithelial surfaces. As such, specimens collected must contain as many epithelial cells as possible. Hence, specimens should ideally be swabs of epithelial surfaces with a good sampling of cells, e.g., conjunctival swabs, urethral swabs, cervical swabs.

Patient samples that are obtained by swabs should be smeared onto the well of the Teflon-coated slide (obtainable from the laboratory, Tel: 63214961) at the bedside. The slide should be air-dried and despatched to the laboratory in a slide container.
SECTION 4: SAMPLE COLLECTION & HANDLING – SPECIAL INSTRUCTIONS & LAB TESTS

General principles for collection of swab specimens:

1. Wipe off excess mucous/pus from site with cotton or Dacron swab. Dispose of the swab.
2. (a) Urethra: Insert small Dacron swab 2 – 4 cm into urethra, rotate swab and withdraw.
   (b) Cervix: Insert large or small Dacron swab into endocervix canal until most of the tip is not visible. Rotate for 5 – 10 seconds inside canal, withdraw swab without touching any vaginal surfaces.
   (c) Conjunctival swab: Using a small Dacron swab, thoroughly swab the inner surface of the lower, then the upper eyelid.
3. Smear onto the well of Teflon coated slide. Air dry completely.

The following types of specimens will be rejected by the laboratory:
- Body fluids e.g. semen and urine
- Pieces of tissue, rectal swabs and samples submitted in the form of dry swabs

Method: Direct Immunofluorescence (DIF)
Test results: Reported as follows:
- *Chlamydia trachomatis* elementary bodies, Seen or Not Seen

Turnaround time: Range 2 – 3 days
Day(s) Test Set Up: Tuesday and Friday

**CHLAMYDIA PNEUMONIAE PCR**
(See Molecular Lab)

**CHLAMYDIA TRACHOMATIS PCR**
(See Molecular Lab)

**CHLAMYDIA SEROLOGY**
(See Virology)
ALPHABETICAL TEST LISTING – MISCELLANEOUS INFECTIOUS DISEASES – ANTIBODIES AND ANTIGENS

**AMOEIC ANTIBODY**
- Specimen required: 3 mL plain blood
- Method: Indirect haemagglutination
- Test results: Titre ≥ 1:32 Presumptive positive
  - Titre below 1:32 Inconclusive: suggest send second specimen in 1 week.
- Turnaround time: Range 2 – 7 days
- Day(s) test set up: Batch tested, once/week

**ASPERGILLUS ANTIBODY**
- Specimen required: 3 mL plain blood
- To diagnose aspergilloma and allergic bronchopulmonary aspergillosis (ABPA) in immunocompetent hosts
- Method: Immunodiffusion
- Test results: Reported as Positive or Negative for *Aspergillus* Antibody
- Turnaround time: Range 2 – 8 days
- Day(s) test set up: Batch tested, once/week

**ASPERGILLUS GALACTOMANNAN ANTIGEN**
- Specimen required: 5 mL plain blood
- To diagnose invasive aspergillosis in immunocompromised hosts
- Method: Enzyme Immunoassay
- Test results: Reported as *Aspergillus* galactomannan Antigen Index
  - Negative < 0.5 Ag Index
  - Positive ≥ 0.5 Ag Index
- Turnaround time: Range 1 – 3 days
- Day(s) test set up: Batch tested, Tuesday and Friday

**BORRELIA BURGDORFERI ANTIBODY IgM (IF)**
- Specimen required: 3 mL plain blood. To diagnose acute infection, send acute specimen for IgM and second specimen taken 4 weeks later for IgG on the pair.
- Method: Immunofluorescence
- Test results: Test done at serum dilution of 1:10. Reported as Detected or Not Detected. For positive results, suggest *B. burgdorferi* Western Blot (WB) for confirmation. In acute infections, IgM should be positive and a ≥ 4 fold rise in IgG titre will be seen.
- Turnaround time: Range 2 – 3 days
- Day(s) test set up: Monday – Friday
**BORRELIA BURGDORFERI ANTIBODY IgG (IIF)**

Specimen required: 3 mL plain blood.

Ideally paired acute and convalescent sera should be sent for both IgM and IgG. (Please see Borrelia Burgdorferi Antibody IgM.)

Method: Immunofluorescence

Test results: Screening dilution is 1:80. Reported as Detected with the end-point titre or Not Detected. For single specimens: If titre is ≤ 1:320, result is Inconclusive, suggest sending second specimen in 4 weeks, where IgG will be performed on the pair. If titre is > 1:320 result is reported as Presumptive positive. For Presumptive positive results, suggest *B. burgdorferi* Western Blot (WB) for confirmation.

Turnaround time: Range 2 – 4 days

Day(s) test set up: Monday – Friday

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**BORRELIA BURGDORFERI ANTIBODY, WESTERN BLOT (IgG OR IgM)**

Specimen required: 3 mL plain blood. The screening result and the lab number should be indicated.

Method: Western Blot

Test results: Reported as Positive, Indeterminate or Negative

Turnaround time: Range 2 – 7 days

Day(s) test set up: Monday – Friday

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**BRUCELLA ANTIBODY**

Specimen required: 3 mL plain blood

Method: Tube agglutination

Test results: Serum tested using doubling dilutions from 1:20 to 1:640. Presumptive Positive reported if titre ≥ 1:160. If < 1:160, suggest send second specimen 2 weeks later.

Turnaround time: Range 2 – 8 days

Day(s) test set up: Once/week

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**CLOSTRIDIUM DIFFICILE TOXINS A & B**

Specimen required: Fresh stool (one teaspoon or about 10 mm³ of stool) in a clean leak-proof container with a tight-fitting lid. If it is not possible to despatch the stool sample to the laboratory within the same day, the sample should be kept at 2 – 8°C in the refrigerator. Please note: Stool in transport media, on swabs, mixed in urine or preservatives, is not appropriate for testing and will have to be rejected.

Method: Horizontal-flow Enzyme Immunoassay

Test results: Reported as Detected or Not Detected

Turnaround time: Same day of receipt of sample

Day(s) test set up: Monday – Saturday (Saturday morning up to 12 noon)
**HELICOBACTER PYLORI STOOL ANTIGEN (HPSA)**

Specimen required: Fresh stool (one teaspoon or about 10 mm³ of stool) in a clean leak-proof container with a tight-fitting lid. If it is not possible to despatch the stool sample to the laboratory within the same day, the sample should be kept at 2 – 8°C in the refrigerator.

Please note:
1. Stool specimens should be sent 2 weeks after discontinuation of therapy involving antimicrobials, proton pump inhibitors and bismuth preparations, as these are known to cause false-negative results if ingested within 2 weeks prior to stool testing.
2. Stool in transport media, on swabs, mixed in urine or preservatives, is not appropriate for testing and will have to be rejected.

Method: Immunochromatographic assay

Test results: Reported as Detected or Not Detected

Turnaround time: Same day of receipt of sample

Day(s) test set up: Monday – Saturday (Saturday morning up to 12 noon)

**LEGIONELLA ANTIBODY**

Specimen required: 3 mL plain blood

Paired acute and convalescent (3 – 6 weeks after onset of fever) should be sent. Acute phase sera are tested alone; a convalescent specimen is requested and when received will be run together with the acute phase sera.

Method: Immunofluorescence

Test results: Serum run at doubling dilutions from 1:64 to 1:1024. A fourfold rise in titre between acute and convalescent sera is considered proof of ongoing infection. A single titre of ≥ 1:1024 is considered a presumptive positive.

Turnaround time: Range 1 – 4 days

Day(s) test set up: Monday – Friday

**LEGIONELLA URINARY ANTIGEN (L. PNEUMOPHILA SEROGROUP 1)**

Specimen required: 5 mL fresh urine

Method: Immunochromatographic assay

Test results: Reported as Presumptive Positive or Presumptive Negative

Turnaround time: Same day of receipt of sample

Day(s) test set up: Monday – Saturday (Saturday morning up to 12 noon)

**LEPTOSPIRA IgM ANTIBODY**

Specimen required: 3 mL plain blood

Method: Enzyme immunoassay (qualitative)

Test results: Results reported as Positive, Indeterminate or Negative. Convalescent samples are required for Indeterminate and Negative results. Positive results are considered “Presumptive positive”

Turnaround time: Range 2 – 7 days

Day(s) test set up: Batch tested, once/week
TOXOPLASMA ANTIBODY, IgM

Specimen required: 3 mL plain blood

To diagnose acute infection, send acute specimen and second serum taken 14 days later for IgG on the pair as well.

Method: Immunofluorescence

Test results: Test done at serum dilution of 1:10. Reported as Detected, Indeterminate or Not Detected. Acute infection will show IgM positive and ≥ 4 fold rise in IgG.

Turnaround time: Range 1 – 3 days

Day(s) test set up: Monday – Friday

TOXOPLASMA ANTIBODY, IgG

Specimen required: 3 mL plain blood

Paired acute and convalescent sera (3 – 6 weeks after onset of fever) should be sent. Acute phase sera are tested alone; a convalescent specimen is requested and when received will be run together with the acute phase sera. Ideally, paired acute and convalescent sera should be sent for both IgM and IgG. (Please see Toxoplasma Antibody, IgM.)

Method: Immunofluorescence

Test results: Results reported as Detected or Not Detected at the screening titre (1:16) if only IgG is requested. If the serum is sent for both IgM and IgG testing or both acute and convalescent sera are received, they will be run at doubling dilutions from 1:16 to 1:1024. Interpretation of titres on single specimens:

< 1:16: No previous infection

1:16 – 1:512: A single specimen with such a result has no significance in itself; such titres may be prevalent in a population where toxoplasma infection is endemic.

≥1:1024: Presumptive positive

Four-fold rise in titre of greatest significance

Turnaround time: Range 1 – 4 days

Day(s) test set up: Monday – Friday

URINE PREGNANCY SCREEN (HCG ASSAY)

Specimen required: 5 mL fresh urine

Method: Immunochromatographic assay

Test results: Sensitivity of this test is 25 mIU hCG/mL, a level usually achieved 3 – 4 days after the first missed menstrual period. Reported as Negative or Positive

Turnaround time: Same day of receipt of sample

Day(s) test set up: Monday – Saturday (Saturday morning up to 12 noon)