Diagnostic method for detecting bacterial/viral infections by host RNA levels in blood

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In instances of respiratory distress, it is often difficult to determine whether an infection is present or if the distress is purely inflammatory in nature. Treatments for these conditions differ greatly (either with antibiotics for infection or with anti-inflammatory drugs in case of no infection), although symptoms can often be similar. Currently, physicians run a white blood cell (WBC) count to get an idea of the presence of infection. However, counting WBCs does not tell you whether those cells are activated to fight an infection. If doctors could quickly determine whether an infection is present, they will treat patients more appropriately. This will avoid costs from either lack of treatment or incorrect treatment, as well as prevent overuse of antibiotics, which leads to antibiotic resistance.

Using blood samples, GW researchers identified strong RNA expression markers of infections in the lungs. The InfectDx test provides a clinically useful measure of whether a patient’s immune cells are activated by a respiratory infection.

The presence of a viral or bacterial pathogen can be determined due to the immune response. This test can be adapted to other specific applications such as appendicitis, CNS infections, parasitic infections, and any situation where the immune system detects a pathogen.

Applications:

• Ability to discern the presence of infection or not

• Justify the use of antibiotics or anti-inflammatory drugs

Advantages:

• Highly specific and fast detection using simple rtPCR reactions

• Not limited to identification of specific pathogen types, species, or strains

• Can be used in conjunction with traditional WBC test
• Repeated tests are justified each time a person displays signs of inflammation or infection (large and renewable market)

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