

Claims

1. A method for detecting a microbial sourced extracellular vesicle in a urine sample from a subject, comprising:
 - (a) treating the urine sample by contacting it with a substrate selected to disrupt binding interactions among a microbial antigen associated with the microbial sourced extracellular vesicle and a biological component in the urine sample;
 - (b) contacting the treated urine sample with at least one antibody specific for the microbial antigen associated with the microbial sourced extracellular vesicle in an effective amount to produce a detectable amount of antibody-antigen complex, wherein the microbial antigen comprises a polysaccharide or a glycoprotein comprising a galactofuranose residue, and wherein the at least one antibody binds the galactofuranose residue; and
 - (c) detecting the presence of the antibody-microbial antigen complex, wherein the detection of the presence of the antibody-microbial antigen complex indicates the presence of the microbial sourced extracellular vesicle in the urine sample and that the microbe is present in the subject.
2. The method of claim 1, wherein the substrate comprises an intelectin-binding component.
3. The method of claim 2, wherein the intelectin-binding component comprises one or more of glycerol, 3-Keto-2-deoxyoctonic acid; D-glycerol-1-phosphate, D-mannoheptose, sepharose, or sepharose-containing particles, optionally wherein the sepharose-containing particles comprise latex beads, polystyrene beads, glass beads, microspheres or gels.
4. The method of claim 1, wherein the substrate comprises a desalting column.
5. The method of claim 3, wherein the at least one antibody comprises mAb476.

6. The method of claim 1, wherein the detection of the presence of an antibody-microbial antigen complex is diagnostic for the presence of Ascomycetes fungi in the subject.
7. A method for detecting a fungal sourced extracellular vesicle in a urine sample from a subject, comprising:
 - (a) treating the urine sample by contacting it with a desalting column,
 - (b) contacting the treated urine sample with at least one antibody specific for a fungal antigen associated with the fungal sourced extracellular vesicle in an amount effective to produce a detectable amount of an antibody-fungal antigen complex, wherein the fungal antigen comprises a polysaccharide or a glycoprotein comprising a galactofuranose residue, and wherein the at least one antibody binds the galactofuranose residue, and
 - (c) detecting the presence of the antibody-fungal antigen complex, wherein the detection of the presence of the antibody-fungal antigen complex indicates the presence of the fungal sourced extracellular vesicle in the urine sample and that the fungus is present in the subject.
8. The method of claim 7, wherein the fungal sourced extracellular vesicles are bound to a protein.
9. The method of claim 8, wherein the protein comprises uromodulin.
10. The method of claim 7, wherein the treating the urine sample comprises passing the urine sample through the desalting column that co-precipitates uromodulin with the fungal sourced extracellular vesicle.
11. The method of claim 10, wherein the desalting column comprises an intelectin binding component.

12. The method of claim 11, wherein the intelectin-binding component comprises glycerol, 3-Keto-2-deoxyoctonic acid; D-glycerol-1-phosphate, D-mannoheptose, sepharose, sepharose-containing particles, optionally wherein the Sepharose containing particle comprises latex beads, polystyrene beads, glass beads, microspheres or gels.
13. The method of claim 8, wherein the antibody at least one comprises mAb476.
14. The method of claim 8 wherein the detection of the presence of the antibody-fungal antigen complex is diagnostic of the presence of Ascomycetes fungi in the subject.
15. The method of claim 8, wherein the fungal antigen is from *Aspergillus* species, *Aspergillus fumigatus*, *Aspergillus flavus*, *Aspergillus niger*, *Aspergillus nidulans*, *Aspergillus terreus*, *Aspergillus sydowi*, *Aspergillus flavatus*, *Aspergillus glaucus*, *Fusarium*, *Scedosporium*, *Histoplasma*, *Coccidioides*, *Paracoccidioides*, *Blastomyces*, *Pseudallescheria*, *Fusarium*, *Mucorales*, *Zygomycetes*, and *Pneumocystis*.
16. The method of claim 8, wherein the fungus is selected from the group consisting of: *Aspergillus* spp, *Aspergillus fumigatus*, *Aspergillus flavus*, *Aspergillus niger*, *Aspergillus nidulans*, *Aspergillus terreus*, *Aspergillus sydowi*, *Aspergillus flavatus*, *Aspergillus glaucus*, *Fusarium*, *Scedosporium*, *Histoplasma*, *Coccidioides*, *Paracoccidioides*, *Blastomyces*, *Pseudallescheria*, *Fusarium*, *Trichophyton*, *Trichosporon*, *Microsporum*, *Epidennophyton*, *Scytalidium*, *Malassezia*, *Penicillium*, and *Pneumocystis*.
17. The method of claim 1, wherein the detection of the presence of the antibody-microbial antigen complex is diagnostic for presence of a parasite in the subject, and wherein the parasite is selected from the group consisting of: *Leishmania* species, *Leishmania donovani*, *Plasmodium* species, *Plasmodium vivax*, *Plasmodium ovale*, *Plasmodium falciparum*, *Plasmodium malariae*, *Plasmodium knowlesi*, *Trypanosoma* species,

Trypanasoma cruzi, Strongyloides species, Toxoplasma species, Toxoplasma gondii, and Helminths.

18. The method of claim 1, wherein the detection of the presence of the antibody-microbial antigen complex is diagnostic for presence of a bacteria in the subject, and wherein the bacteria is selected from the group consisting of: Mycobacteria, Acidaminococcus, Acinetobacter, Acinetobacter Iwoffi, Aeromonas, Alcaligenes, Bacteroides, Bordetella, Branhamella, Brucella, Calymmatobacterium, Campylobacter, Cardiobacterium, Chromobacterium, Citrobacter, Citrobacter freundii, Cotiform group, Edwardsiella, Enterobacter, Enterobacter sakazaki, Enterobacter aerogenes, Enterobacter cloacae, Enterobacter agglomerans, Enterococcus, Enterococcus faecalis, Enterococcus faecium, Escherichia, Escherichia coli, Escherichia coli-0157, Flavobacterium, Francisella, Fusobacterium, Haemophilus, Hafnia alvei, Klebsiella, Klebsiella oxytoca, Klebsiella pneumoniae, Legionella, Moraxella, Morganella, Morganella morganii, Neisseria, Pasturella, Plesiomonas, Proteus, Providencia, Proteus mirabilis, Pseudomonas, Pseudomonas aeruginosa, Salmonella, Salmonella typhimurium, Serratia, Serratia marcescens, Shigella, Shigella flexneri, Streptobacillus, Veillonella, Vibrio, Vibrio cholera, Yersinia, Yersinia enterocolitica, Xanthomonas maltophilia, Staphylococcus, Staphylococcus albus, Staphylococcus epidermiditis, Staphylococcus lugdenensis, Staphylococcus aureus, Streptococcus, Streptococcus pneumoniae, Streptococcus dysgalactiae, Micrococcus, Peptococcus, Peptostreptococcus, Bacillus, Bacillus cereus, Clostridium, Lactobacillus, Listeria, Listeria monocytogenes, Erysipelothrix, Propionibacterium, Eubacterium, and Corynebacterium.
19. The method of claim 12, wherein the treating the urine sample comprises passing the urine sample through the desalting column that comprises the intelectin binding component, and wherein the treating disrupts the binding interaction among the fungal antigen associated with the fungal sourced antigen and a intelectin in the urine sample.
20. The method of claim 1, wherein the microbial antigen comprising the polysaccharide or the glycoprotein comprising the galactofuranose residue comprises a disaccharide comprising

a $\text{Gal}f\text{-}\beta\text{-(1}\rightarrow\text{5)-Gal}f$ moiety, and wherein the at least one antibody binds the $\text{Gal}f\text{-}\beta\text{-(1}\rightarrow\text{5)-Gal}f$ moiety.

21. The method of claim 1, wherein the microbial antigen comprising the polysaccharide or the glycoprotein comprising the galactofuranose residue comprises an oligosaccharide comprising three or more $\text{Gal}f\text{-}\beta\text{-(1}\rightarrow\text{5)-Gal}f$ moieties, and wherein the at least one antibody binds the three or more $\text{Gal}f\text{-}\beta\text{-(1}\rightarrow\text{5)-Gal}f$ moieties.