



Parasite Antigen

Parasitic illnesses produce a massive disease burden in both the tropics and subtropics and in more temperate areas. Malaria is the most lethal parasite illness in the world. Neglected Tropical Diseases (NTDs) have received little attention from the public health community. NTDs affect around one billion people globally, most of them living in rural parts of low-income nations. However, parasitic illnesses affect people in industrialized countries as well.

A parasite is an organism that lives on or in the host and obtains sustenance from or at the host's expense. Protozoa, helminths, and ectoparasites are the three main types of parasites that can cause human disease.

Protozoa

Protozoa are one-celled animals that can be found in almost any environment. Most species are free-living. However, all higher animals are infected with one or more protozoa species. Infections can range from asymptomatic to fatal, depending on the parasite's type and strain and the host's resistance.

Human-infectious protozoa can be divided into four types based on their way of movement:

- Sarcodina – an ameba, for example, Entamoeba
- Mastigophora – flagellates such as Giardia, Leishmania
- Ciliophora — ciliates, such as ciliates, Balantidium
- Sporozoa - organisms with immobile adult stages, such as Plasmodium and Cryptosporidium.

Helminths

Helminths are large, multicellular organisms that may be seen with the naked eye in adult form. Helminths, like protozoa, can be either free-living or parasitic. Helminths cannot reproduce in humans as adults. Helminths are worms that belong to one of the following groups:

- Roundworms or nematodes
- Flukes and flatworms are examples of trematodes.
- Tapeworms or cestodes
- Monogenans are flatworm phylum members.

Ectoparasites

Ectoparasites, which include lice, ticks, mites, and fleas, are organisms that attach or burrow into the skin and remain there for extended periods of time (e.g., weeks to months). Arthropods are significant in their own right for generating diseases, but they are far more important as vectors, or transmitters, of many different pathogens, which cause tremendous morbidity and mortality from the diseases they cause



An antigen is anything that stimulates an immunological reaction in another organism. This immune response might be as simple as an increase in inflammatory markers or as complex as activation of the adaptive immune system and antibody production. Antibodies include two or more distinct paratopes or antigen recognition sites, allowing them to recognize and battle the invading antigen. The number of antigen recognition sites varies according to antibody class. Any protein of interest detected by a bioassay or biodetection platform can also be referred to as an "antigen."

Many parasitic species, including eukaryotes and bacteria, have surface antigens with amino acid repeats. Such repeating proteins, which form the interface between host and pathogen, could be virulence factors implicated in immune evasion or cytoadherence. They are used in immunology for serodiagnosis and vaccine development.

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General references

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