

### DMID's Scientific Priorities

- Maintain a robust portfolio of basic, translational, and clinical research in microbiology and infectious diseases
- Develop countermeasures to mitigate emerging infectious disease outbreaks and biodefense threats
- Support the development of vaccines, therapeutics, and diagnostics for tuberculosis
- Combat the health impact of antibacterial resistance
- Advance the development of universal influenza and coronavirus vaccines
- *Improve strategies for prevention and treatment of malaria*

**NIAID Prototype Pathogen Approach for Vaccine and Monoclonal Antibody Development** (Cassetti et al., 2022): More information: <https://pmc.ncbi.nlm.nih.gov/articles/PMC9384504/>

**Figure 2:**

		Pandemic potential	
		Low/Moderate	High
Existing resources or countermeasures	High	<ul style="list-style-type: none"> <li>• Hepadnaviridae</li> <li>• Papillomaviridae</li> <li>• Poxviridae</li> <li>• Retroviridae</li> </ul>	<ul style="list-style-type: none"> <li>• Coronaviridae*</li> <li>• Orthomyxoviridae*</li> </ul>
	Low/Moderate	<ul style="list-style-type: none"> <li>• Adenoviridae*</li> <li>• Anelloviridae</li> <li>• Arteriviridae</li> <li>• Astroviridae</li> <li>• Bornaviridae</li> <li>• Caliciviridae</li> <li>• Hepeviridae</li> <li>• Herpesviridae</li> <li>• Parvoviridae</li> <li>• Picobirnaviridae</li> <li>• Pneumoviridae</li> <li>• Polyomaviridae</li> <li>• Reoviridae</li> <li>• Rhabdoviridae*</li> </ul>	<ul style="list-style-type: none"> <li>- Bunyavirales</li> <li>• Arenaviridae</li> <li>• Hantaviridae</li> <li>• Nairoviridae</li> <li>• Peribunyaviridae</li> <li>• Phenuiviridae</li> <li>• Filoviridae*</li> <li>• Flaviviridae*</li> <li>• Paramyxoviridae*</li> <li>• Picornaviridae*</li> <li>• Togaviridae</li> </ul>

### **Priority Pathogen and Resistance Targets**

- ESKAPE+ pathogens (Enterococcus faecium, Staphylococcus aureus, Klebsiella pneumonia, Acinetobacter baumannii, Pseudomonas aeruginosa, Enterobacter spp, Escherichia coli), including genotypic resistance markers
- Mycobacterium tuberculosis
- Neisseria gonorrhea and antibiotic resistance markers
- Treponema pallidum
- Identification and genotypic resistance markers for Bacillus anthracis, Yersinia pestis, Francisella tularensis, Burkholderia spp, Botulinum toxin, including identifying and distinguishing relevant serotypes
- Lassa virus

- Nipah virus
- Rift Valley Fever virus
- Enterovirus D68 virus
- Novel coronaviruses
- Hepatitis C virus
- Filoviruses (Sudan ebolavirus, SEBOV; Marburg virus, MARV, Zaire ebolavirus, ZEBOV)
- Monkeypox virus (MPXV)
- Herpes simplex virus (HSV)
- Candida spp. and genotypic resistant markers
- Aspergillus fumigatus and genotypic resistant markers
- Coccidioides spp.
- Mucorales

## **BACTERIA**

### Urgent Threats

- *Acinetobacter baumannii*\*
- *Clostridioides difficile*
- *Neisseria gonorrhoeae*
- *Enterobacterales*\*

### Serious Threats

1. Campylobacter
2. Enterococci\*
3. Pseudomonas aeruginosa\*
4. Nontyphoidal Salmonella
5. Salmonella serotype Typhi
6. Shigella
7. Staphylococcus aureus\*
8. Streptococcus pneumoniae
9. Non-tubercular mycobacteria (NTM)

\*ESKAPE Pathogens

## **FUNGI**

Candida auris

Aspergillus fumigatus

Candida spp