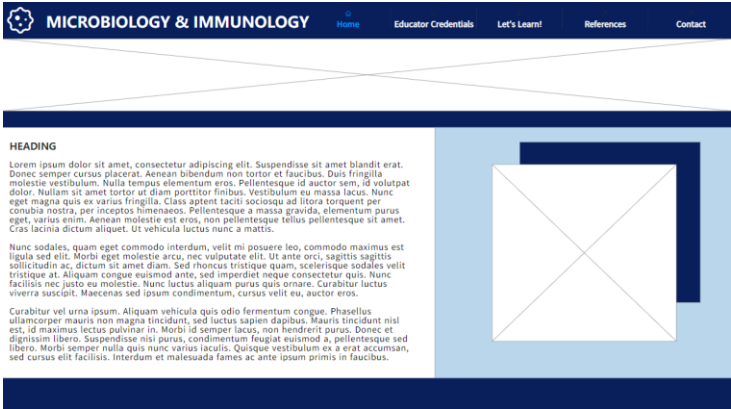


# ABOUT

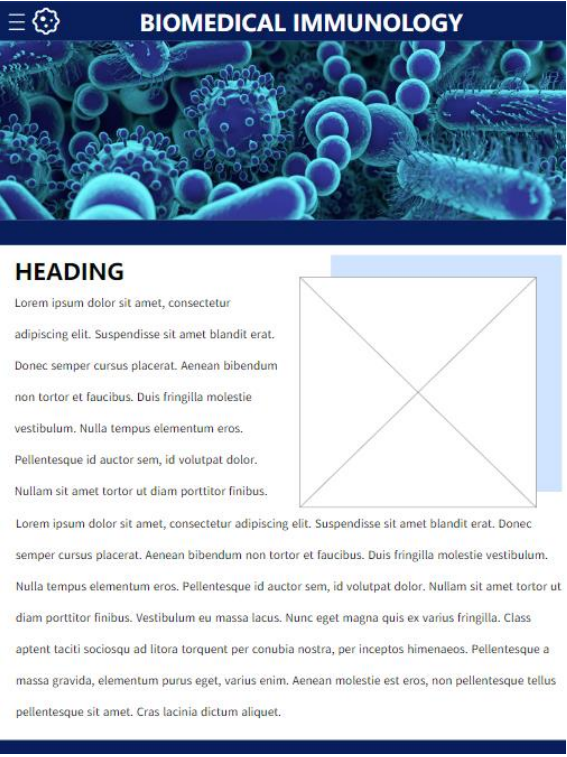


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**VISUALS:** welcome image



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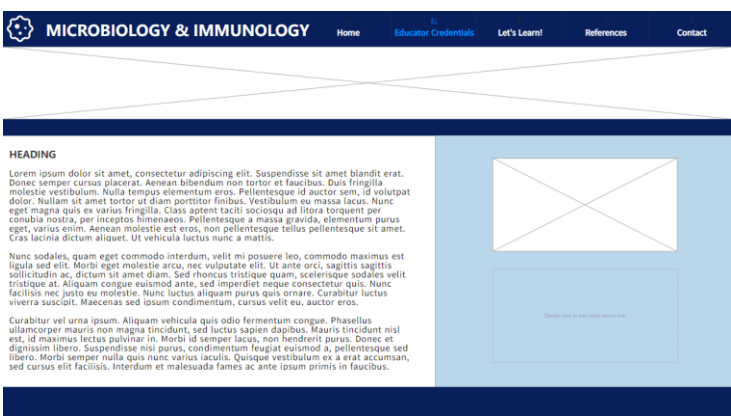
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**CONTENT INVENTORY:** Welcome to introductory biomedical immunology! The immune system is a complex, integral system that prevents infections and coordinates immune responses. Having a foundation in immunological principles is essential for understanding disease prevention, immune processes, and cell function. This instruction aims to establish a foundation for immunology and encourage further exploration into immune responses and their biomedical importance. There are four primary concepts that will be explored: Immune system components and functions, innate immune system, adaptive immune system, and disorders of the immune system. Immune system components and functions further develop an understanding of fundamental principles such as “self” vs “non-self” recognition, immunology response type, and the importance of the immune system. The innate and adaptive immune systems distinguish the functions, cellular components, and biological pathways, of each system while emphasizing their connectivity. Using the previous concepts as a foundational steppingstone, you will be able to apply the basic principles of immunology and the application of their cellular processes to immune system malfunctions such as immunodeficiencies, autoimmune disorders, and cancerous growths.

# EDUCATOR CREDENTIALS



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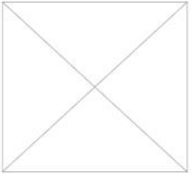
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**CONTENT INVENTORY:** Welcome! My name is Sasha, and I am currently pursuing an undergraduate degree in biological sciences at the University of Missouri with an expected graduate date of Spring 2024. Through a biological sciences degree, there is an emphasis on biological processes through both wet and dry labs. In coordination with biology degree requirements, I have taken diversity courses in medical microbiology and immunology through The University of Missouri School of Medicine. This has greatly expanded my understanding of scientific processes and reinforces the interdisciplinary nature of biology. In addition to formal education through the Arts & Science College, I have professional experience in patient care positions where laboratory techniques, phlebotomy training, and medical terminology were acquired. Experience in a healthcare setting has contributed to my exceeding interest in biological principles that drive medical innovations and disease research. Furthermore, education and experience are a continuing process that I hope to pursue through a Master of Medical Sciences in Immunology.

“Learning is not attained by chance. It must be sought for with ardor and attended with diligence.” – Abigail Adams

# LET'S LEARN

<div data-bbox="111 154 833 191">  <span>MICROBIOLOGY &amp; IMMUNOLOGY</span> <span>Home</span> <span>Educator Credentials</span> <span>Let's Learn!</span> <span>References</span> <span>Contact</span> </div> <div data-bbox="111 289 833 560"> <div>HEADING</div> <div> <ol style="list-style-type: none"> <li>1. Donec lacinia eget enim in blandit.</li> <li>2. Praesent gravida mi id convallis finibus.</li> <li>3. Interdum et malesuada fames ac ante ipsum.</li> <li>4. Fusce ac fermentum felis, in feugiat sapien.</li> </ol> </div> <div>HEADING</div> <div> <p>Maecenas sed ipsum condimentum, cursus velit eu, auctor eros. Curabitur vel urna ipsum. Aliquam vehicula quis odio fermentum congue. Phasellus ullamcorper mauris non magna tincidunt, sed luctus sapien dapibus. Mauris tincidunt nisl est, id maximus lectus pulvinar in. Morbi id semper lacus, non hendrerit purus.</p> </div> <div>HEADING</div> <div> <p>Maecenas sed ipsum condimentum, cursus velit eu, auctor eros. Curabitur vel urna ipsum. Aliquam vehicula quis odio fermentum congue. Phasellus ullamcorper mauris non magna tincidunt, sed luctus sapien dapibus. Mauris tincidunt nisl est, id maximus lectus pulvinar in. Morbi id semper lacus, non hendrerit purus.</p> </div> </div> <div data-bbox="111 609 833 673"> <p><b>HEX CODES:</b> #FFFFFF (white), #081F5C (dark blue), #333333 (black)</p> </div> <div data-bbox="111 706 833 743"> <p><b>FONTS:</b> Perpetua (Title, headings, body, etc.)</p> </div> <div data-bbox="111 776 833 941"> <p><b>ALL LAYOUTS:</b> inclusion of cell banner across top of page, white background for text, image/video/visuals have accent colors listed in hex code, black text on white background, white text on blue background, inclusion of cell icon in header.</p> </div> <div data-bbox="111 974 833 1011"> <p><b>VISUALS:</b> image for each learning topic/objective</p> </div>	<div data-bbox="877 154 1432 191">  <span>BIOMEDICAL IMMUNOLOGY</span> </div> <div data-bbox="877 191 1432 393">  </div> <div data-bbox="877 414 1432 901"> <div>HEADING</div> <div> <ol style="list-style-type: none"> <li>1. Donec lacinia eget enim in blandit.</li> <li>2. Praesent gravida mi id convallis finibus.</li> <li>3. Interdum et malesuada fames ac ante ipsum.</li> <li>4. Fusce ac fermentum felis, in feugiat sapien.</li> </ol> </div> <div>HEADING</div> <div> <p>Maecenas sed ipsum condimentum, cursus velit eu, auctor eros. Curabitur vel urna ipsum. Aliquam vehicula quis odio fermentum congue. Phasellus ullamcorper mauris non magna tincidunt, sed luctus sapien dapibus. Mauris tincidunt nisl est, id maximus lectus pulvinar in. Morbi id semper lacus, non hendrerit purus.</p> </div> <div>HEADING</div> <div> <p>Maecenas sed ipsum condimentum, cursus velit eu, auctor eros. Curabitur vel urna ipsum. Aliquam vehicula quis odio fermentum congue. Phasellus ullamcorper mauris non magna tincidunt, sed luctus sapien dapibus. Mauris tincidunt nisl est, id maximus lectus pulvinar in. Morbi id semper lacus, non hendrerit purus.</p> </div> </div> <div data-bbox="877 909 1432 974"> <p><b>HEX CODES:</b> #FFFFFF (white), #081F5C (dark blue), #D0E3FF, #333333 (black)</p> </div> <div data-bbox="877 1006 1432 1044"> <p><b>FONTS:</b> Perpetua (Title, headings, body, etc.)</p> </div>	<div data-bbox="1539 154 1948 191">  <span>BIOMEDICAL IMMUNOLOGY</span> </div> <div data-bbox="1539 191 1948 328">  </div> <div data-bbox="1539 341 1948 901"> <div>HEADING</div> <div> <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Suspendisse sit amet blandit erat. Donec semper cursus placerat. Aenean bibendum non tortor et faucibus. Duis fringilla molestie vestibulum. Nulla tempus elementum eros. Pellentesque id auctor sem, id volutpat dolor. Nullam sit amet tortor ut diam porttitor finibus. Vestibulum eu massa lacus. Nunc eget magna quis ex varius fringilla. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos.</p> </div> <div>Double click to add video source link</div> </div> <div data-bbox="1539 909 1948 974"> <p><b>HEX CODES:</b> #FFFFFF (white), #081F5C (dark blue), #333333 (black)</p> </div> <div data-bbox="1539 1006 1948 1076"> <p><b>FONTS:</b> Perpetua (Title, headings, body, etc.)</p> </div>
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**CONTENT INVENTORY:**

**Immune System Components and Function:** The immune system is a dynamic and complex network of cells, organs, and tissues that are responsible for protecting your body against harmful organisms by antigen identification, effect mitigation, combating disease-causing mutations, establishing prevention barriers, and healing damaged cells and tissues. An immune response is elicited when a suspected “invader” surpasses these preestablished physical or chemical barriers such as the skin and mucosa respectively (Professional, n.d.). These “invaders” are called pathogens and can take the form of bacteria, fungi, parasites, viruses, and cancer cells. The immune system is divided into two parts: the innate and adaptive immune system. Together these systems coordinate to enact the first line defense to invaders and develop specific immunity over time.

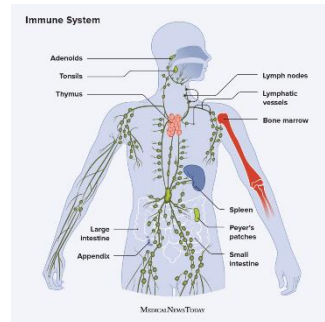
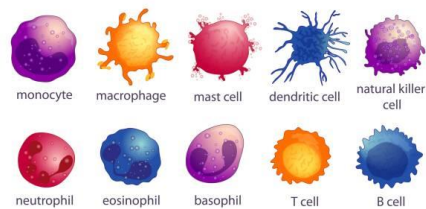


**Innate Immune System:** Both the innate and adaptive immune system have cells that they recruit to the active site of an infection or suspected pathogen. However, the innate immune system is best suited for rapid, generalized responses that are seen through physical barriers, cellular components, and humoral responses. The innate immune response is associated with the first-line defense, which is activated with intrinsic mechanisms programmed within the body (WHAT IS INNATE IMMUNITY? | Center for Innate Immunity and Immune Disease, n.d.). Cellular components include phagocytes that enable digestion, natural killer (NK) cells that specialize in targeting pathogens and the complement system that enhances and directs immune responses by increasing inflammation and directing immune responses (Newman, 2023). The innate immune not only provides immediate protection but is integral in shaping subsequent adaptive immune responses.

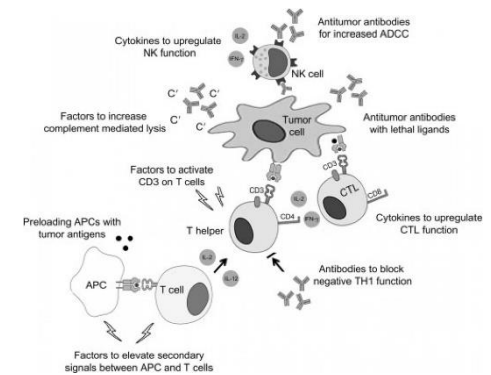
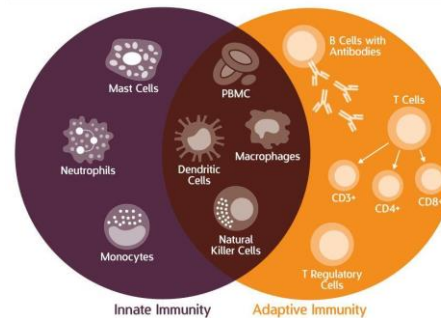
**Adaptive Immune System:** The adaptive immune system is defined by its ability to perform antigen-specific immune responses. Unlike the innate response, the adaptive immune system can recognize, remember, and offer defense to pathogens upon reinfection. Its immunological memory provides long-lasting protection against harmful pathogens, further establishing its importance. The primary cells that facilitate its immune response are lymphocytic B and T cells. B cells are specialized for antibody production while T cells have a diverse set of functions such as direct attacks, immune response coordination, and regulation activity. (Alberts, 2002). The specification of the adaptive immune system is a crucial component in the body's immunological defense.

**Disorders of the Immune System:** The immune system utilizes a multisystem approach to ensure that harmful pathogens that enter the body are unable to infiltrate biological processes. However, in instances where the immune system is unable to facilitate proper coordination, there is an increased susceptibility to immunodeficiency disorders, autoimmune disorders, allergies, and the emergence of cancerous cells. Malfunctions can arise due to genetic factors, medical conditions, and environmental effects (Disorders of the Immune System, 2023). Depending on the disorder, the effects can range from mild inconvenience to deleterious dysfunction of essential immune cells. By looking at varying disorders and deficiencies such as HIV/AIDS, Lupus, and Eczema, their underlying immune response and dysfunction can be analyzed.

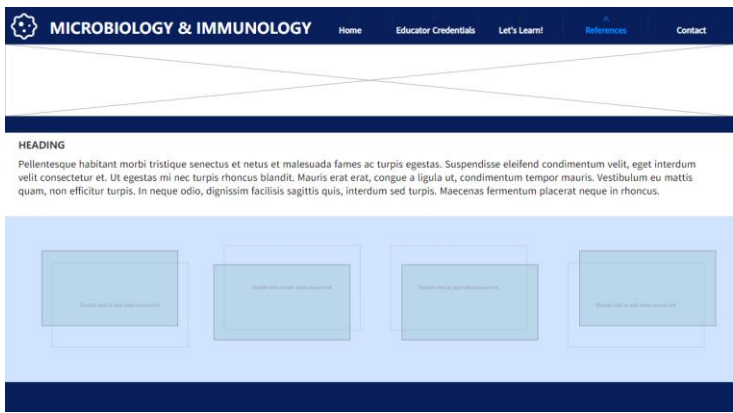
### IMMUNE SYSTEM CELLS



### Cells of the Innate and Adaptive Immune Systems



# REFERENCES



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**VISUALS:** video links to references/external resources



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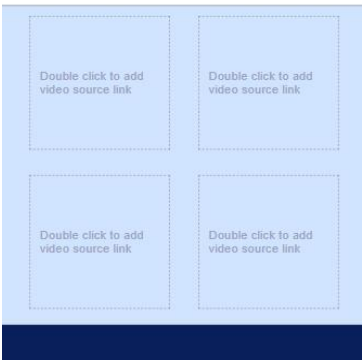


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## CONTENT INVENTORY:

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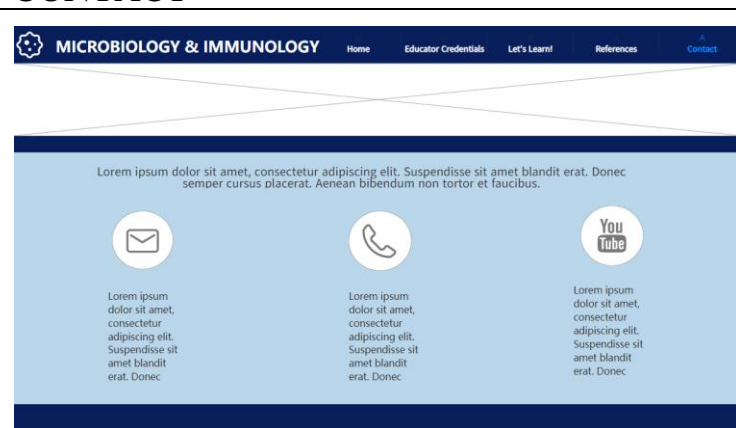
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<https://www.medicalnewstoday.com/articles/320101#immune-system-disorders>

## CONTACT



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**VISUALS:** mail, phone, and social media icons



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**FONTS:** Perpetua (Title, headings, body, etc.)

**CONTENT INVENTORY:** Feel free to reach out with any inquiries, feedback, or collaboration opportunities. We value your input and are committing to providing quality and timely responses!

[Smcc8d@umsystem.edu](mailto:Smcc8d@umsystem.edu)

(417)-231-7465

YouTube (provided once resume video upload)