Complement System Alternate Pathway White Blood Cell Classical Pathways Phagocytosing Bacterium Some Bacterial Cell Wall 1. Antibodies (∠) bind to antigens (□) Polysaccharides will trigger 2. C1 binds to antigen-antibody complex (the complement system. 3. C1 splits C2 into C2a and C2b 4. C1 also splits C4 into C4a and C4b 5. C4b and C2b bond Opsonized 6. C4b-C2b complex splits C3 into C3a and C3b Bacterium 7. C3b does the following a. C3b binds to bacteria and enhance phagocytosis b. C3b splits C5 into C5a and C5b 8. Both C5b and C3a bind to mast cells (C5b C3a). C3a 9. Mast cells secrete histamine (....), enhance inflammation 10. C5b triggers formation of membrane attack complex (MAC) C3b by C5, C6, C7, C8, and C9 (11. Bacterial lysis (cytolysis) occurs. Overhead #4 Classical Pathway Mast Cell Secretes Alternate Pathways Histamine Polysaccharides () on some bacteria interact with specific 1. protein factors (not shown) and C3b to split C3 int C3a and C3b (Enhanced 2. Cascade of compliment interactions continue as above Note that C1, C2, and C4 are not needed and bypassed Inflamation)Cv 3. Integrety of cell membrane fails Cytoplasm leaks out After Microbiology 6th edition, by Tortora, Funke and Case