	Kuby Immunology (Chapter 1)
$\widehat{\mathcal{D}}$	Cell The State of Immunity
O	
\rightarrow	Droppsed by Mtcharkoff
\rightarrow	Jumphorate identified as responsible for both cell-
	proposed by Metchrikoff. Lymphorate identified as responsible for both cell- mediated and humanal immunity
<i>></i>	Cellular/immunity - 1 cells (3 ->)
	Cellular immunity—T cells 3 -> 1 Humograph immunity—B cells
→	Defining on antigen - any thing that elicits a
	Defining on antigen — anything that elicits a specie is rusponse by Bosi Thymphocyles
	ancourer demonstrated inportated levers of
	landsteiner demonstrated unparalleled levels of supportoure is about 109.
	rapportoble to the out to.
\rightarrow	prove rise to the selective and the instructional theory
•	
	4) proved apprect
	Selective theory:
\bigcirc	Cells have specific receptors even before exposure to antiquens.
	to antigens.
(2)	Fach Cell expresses membrane bound receptors of gust one specificity, called antibodies in their soluble
	Just one specificity, called antibodies in their soluble
	form.

Leveloped into the donal selection theories:

o Individual Bon Thymphocyte-expresses many copies of a memberane receptor that is specific for a Single distinct antique.

o Binding of artigen to the receptor activates The cell, cousing it to proliferate into a clone of daughter cells that have the same receptor Specificity as the pare in cell.

Verlebrate Body Cell- Me diated Response tunorial Response OHOKine secretion Intigen elimination

	Organisms causing disease - pathogens
	> rouses - furgi -> parasites
	- furqi
	AS CONTANTES
	> bacterias.
	Effective defense his in terms of invading pathogen.
	Effective defense lies in terms of invading posthogen. Cruhether it resides inside on an surface of host
	cells
	Pathogen recognition needs Interaction between ontognic tragment and recognition molecule.
	transment and recognition, molecule
	January 1999 Million Control of the
_	Immune response - Intracellular on entracellular cascade of events that leads to labelling and distruction of pathogen.
	cascade of events that leads
	to labelling and destruction of pathogen
	J D 7 J T
	What happens for voruses?
	o service serv
,	Viruses live in the cell - as obligate parasites =>
	Notes he in the cell—as obligate parasites => something is needed to recognise changes in host cells once they are infected—done by
	hast cells once they are infected -done by
	supportonic T cetts
((Mississipping)

	PAMPS
→	Patho gen associated molecular patterns
\rightarrow	part of innate immunity a consists of common struct
	Patho gen associated molecular pallerns part of innate immunity & consists of common struck that recognise whole groups of pathogens.
	D 4 010 Parinto (000) 000 1
~	Pattern Recognition receptores (FIRE) specifically
	Pottern Recognition Receptores (PRRs) specifically recognise PAMPS and label antigen for destruction
	- ACS BILLLION
\rightarrow	Consumed and quimfine encoded sucog nation
	Consurved and germfine encoded succes nition molecules.
	Generation of Diversity
0	Diversity of pethogen antigenic site changes or andomly thorough mutation. In order to keep up—engeing arms race with host immune System.
	In mydray to keep up - maging arms mace con
	host immune System
	Solt Randomness is favoured in the generative of recognition molecules.
	of recognition molecules.
	Deletion
	Stem Conal e apansion on antigen emposione
	cel antigen emposione
	Porimory Lymphoid ong
	Lymphoid Doig

	Generation of diversity
	Generaline Theory-Permutation combination of different light and heavy chain antibodies-
	different light and heavy
	chain antibodies
(Les Minigene Hypornesis
	- basically VD (I) recombination.
1	
	Somatic hypermetation - High rate of point
	Somatic hypermetation - High rate of point metation of The variable and D & joining regions of HC & LC.
	and D & joining regions of HC & IC.
	J J J J
	Tolerance
	Hallmark-immune system must not attack hast tissues
	C, system of checks—to establish to lenance
	unnesponsiveness against host structures
	Central Tolerance
	process by which newly developed B and Tcells
	process by which newly developed B and Tcells one nerdered non-nearing to self.

Monal Selection

negative Selection positive selection maturation of Talls elimination of Tcells
who express strong
binding ability to self
antigens present in lymphoid which bind weakly to self MHCs) Negative selection is impositant for maintaining central tolerance — exposussed a short time after exposussing antigen surantoma reactive to self antigens are efficiently removed by apoptosis However, not always true. Immature B cells can edit the succeptor and Thus change the specificity. Theories that speak of tolerances O Clonal deletion theory - self-reactive lymphayles are eliminated. 2) Cloral Anergy theory - self-reactive lymphocytes are inactivated. 3 Idiotype Network theory-Natural antibodies relative antibodies

4	Clonal Ignosiance Theory - Self-reactive T-cells migrate to periphery, where autoread B cells cannot make contact with them.
5	Regulatory Tcell: Regulatory Tcells preventing on inactivating self-activated responses.
	Immunity
	Innate Immunity Adaptive Immunity
	* PRRS * selection and proliferation * complement of T and B lymphocities after antigen exposure.
	How do They communicate?
→	Achieved by cell-cell contact
\rightarrow	soluble proteins like cytokines and chemokines.
,	Achieved by cell-cell contact soluble proteins like cytokines and chemokines. They recorruit new cells to the site, instruct differenting and release of new protein factors.

	Memory
	V
—	important feature of a danton immunity
\rightarrow	Economodoria sur nomero much faiter and Vetromore than
	The same that I have the solonger it was
	impositant feature of adaptive immunity secondary response much faster and stronger than primary response. Why?
	Because ciuting primary suspense, he cells will the
	Because during primary suspense, the cells with the most efficient affinity one donally selected and honed
	Further exposure memory celled— kin of the final
	and most efficient trained rells are no me-naggiste-
	and most efficient trained cells are re-recruited.
	Flouchant of immune response;
	Bacturia breach, Physical
	Bactura breach Physical
	,
	Phagacutasis
	Phagocytosis.
	√
	Phononita rada and cuto kings and alarma 60000
	Phogocyte releases cytokines and chemokines. To altract other WBCs.
	Place to the transfer to the t
	inacocyce viavers to local which hode
	Phagocyte travels to local lymph node > courses bacterial antigens to B-and T cells
	v

Adaptive immure suspense through activation
Activated THE cells activate B cells and clonal expansion of both happen at lymph node
expansion of both happen at lymph node
Immune Response & Memory Cell Creation.
V



