

SKIN
CIRCULATORY
MUCOSAL
BARRIER



IMMUNO

OVERVIEW

- WESTERN BLOT TECH
- FWO AB
- DEFIC AUTOI
- TRANSPANT
- CANCER IMMUNIZA

DISORD

- HOST DEFENSE
- MFC
- CONCENTS
- STRAM CANCERUM
- TIGHT JUNC
- MUCUS LAYER

SPECIFIC

- ANTIMIC P
- ROLE EICOS
- EFFECTS ON VASC
- COMPLEMENT
- ACUTE PHASE R
- SEC^{ED} ENZI P

BARRIERS

- I FM &
- SOLUBLE F
- RETARD SVS
- PPR
- DAMP

MEDIATORS

- CHEMOK
- LYTOK
- HEMOTOPOIESIS
- SELECTINS
- INTEGRINS
- PAMP
- DAMP
- TLR
- NBS-LRR P
- CMCC
- MAST
- REAGENIC
- MONO

ASSAYS

- AGGUTINA TESTS
- PRECIPITA REACO
- PROTEC TESTS
- RES P
- MEMORY
- RES P
- RES PAT W
- FATE A₂
- RESP
- TH
- TH2
- TH1
- I P
- II CO
- AMPHIPATHY R
- THYMUS
- CD4 CD8 -> HUM CN
- CD3
- POLYM
- III
- OPPOX
- CD4
- II
- I
- Tc CD8
- SELF-MHC
- RESTRICTO
- AUEFC
- EXCLUSION
- GENET DIVERSITY
- CLASS
- RANDOM DIV
- SELECO
- MONOMER
- DIAM + SET
- JOINING

RESPONSE TO A₂

- VVACINE
- GERMINAL C
- TISSUE
- I Y ORGANS
- DIVERSITY
- GNT TCR
- CLASSES HLAS
- GNT HLAS
- GNT IS CHAIN SYNT
- D
- E
- A
- M
- G
- S
- PROPERTIES
- SUB CLASSES
- ENZ LEON
- IMMUNOTOXINS
- MONOC
- POM
- HINGE REGION
- IDIOT
- MATURE
- IMMATURE
- OMIVED
- M
- HYDR VAR REG
- DC
- TR
- MAC
- MONO

ADAPTIVE

- GENETICS
- PROPERTIES
- ADHES M
- RESPONSE
- LEUKO A
- COMMONS IN GENIO
- PRR
- LEUKO A
- DC
- TR
- MAC
- MONO

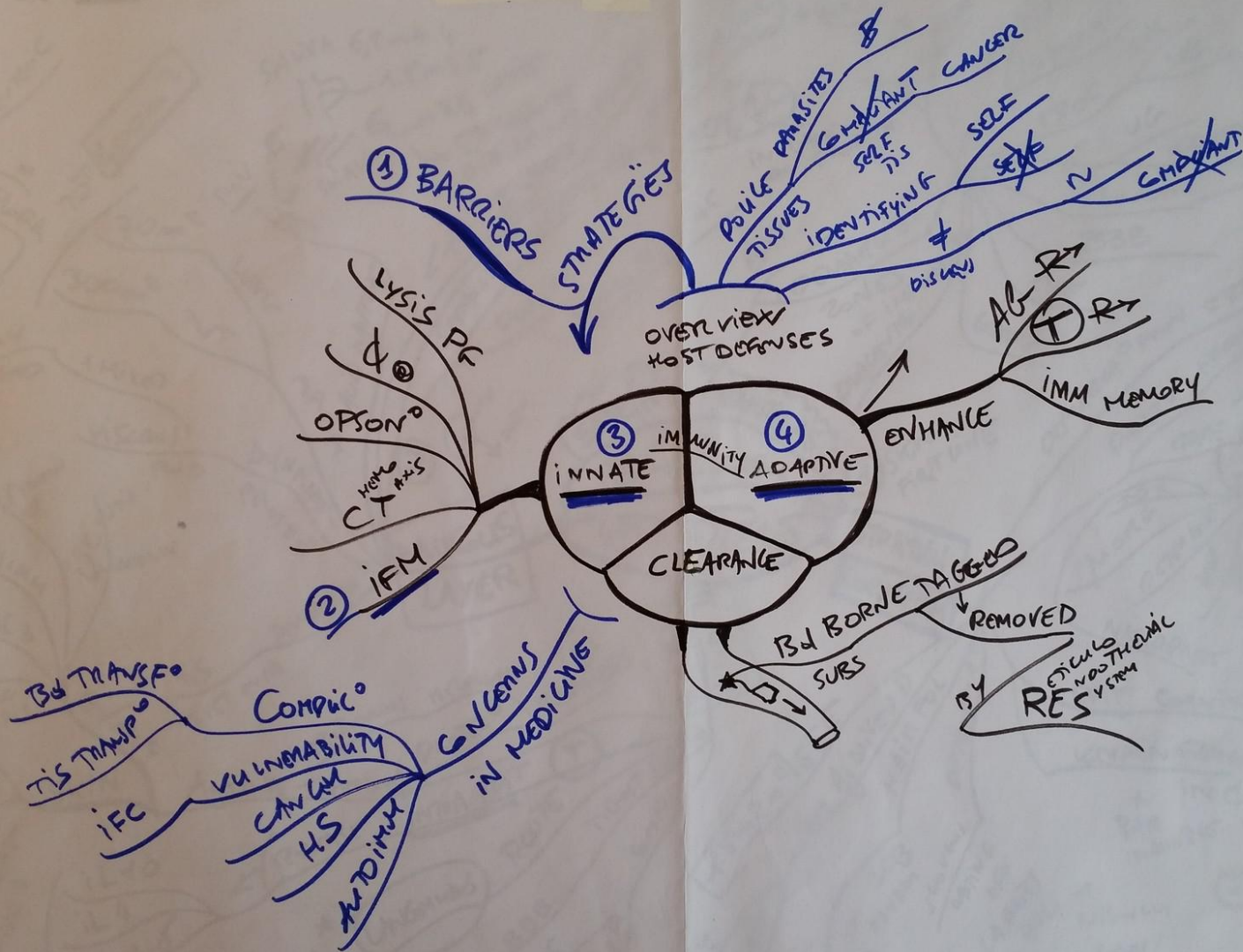
GENETICS

- ADHES M
- RESPONSE
- LEUKO A
- COMMONS IN GENIO
- PRR
- LEUKO A
- DC
- TR
- MAC
- MONO

INNATE

- ADHES M
- RESPONSE
- LEUKO A
- COMMONS IN GENIO
- PRR
- LEUKO A
- DC
- TR
- MAC
- MONO

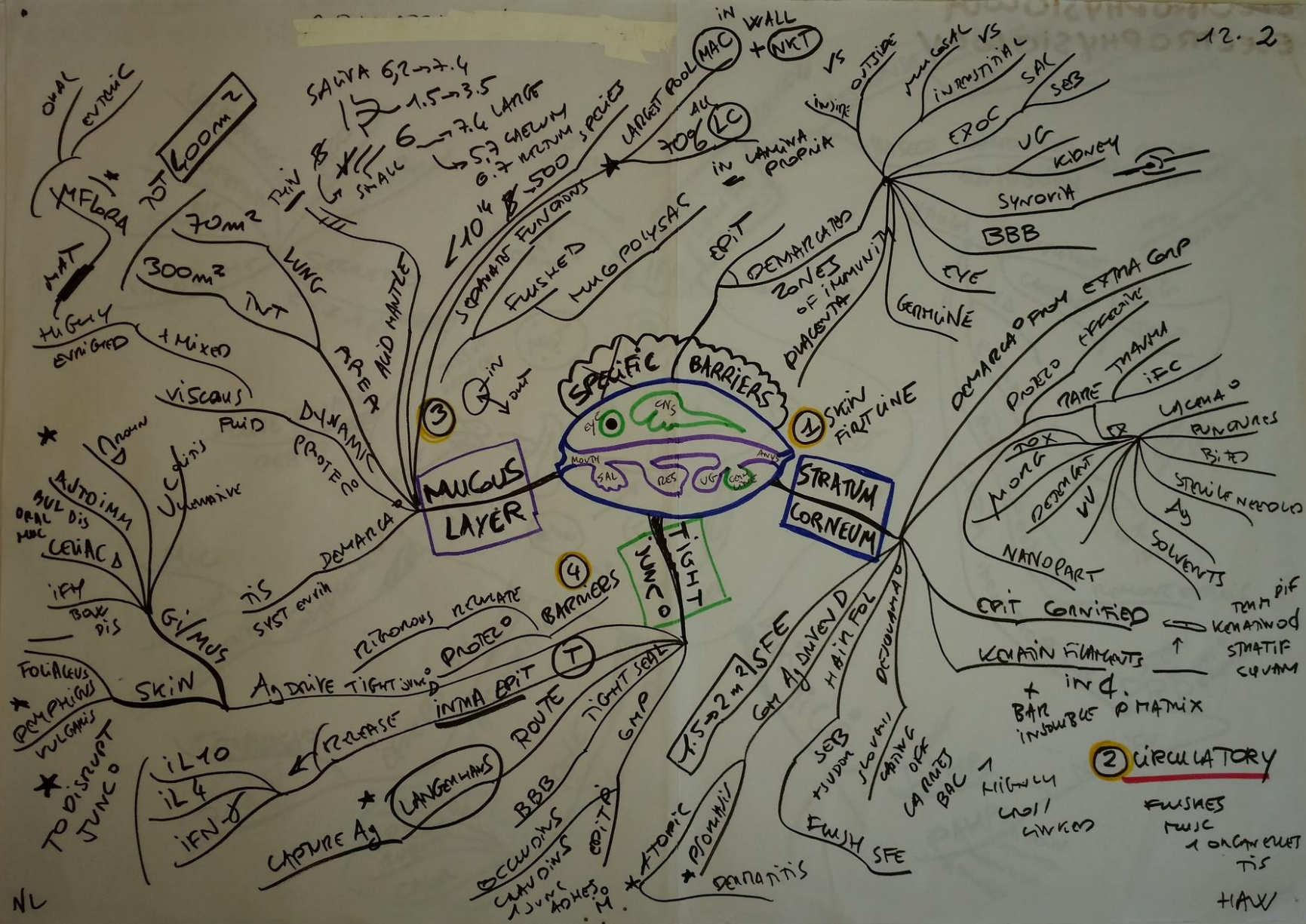
- TH2
- TH1
- I P
- II CO
- AMPHIPATHY R
- THYMUS
- CD4 CD8 -> HUM CN
- CD3
- POLYM
- III
- OPPOX
- CD4
- II
- I
- Tc CD8
- SELF-MHC
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- GENET DIVERSITY
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- RANDOM DIV
- SELECO
- MONOMER
- DIAM + SET
- JOINING
- CD4
- CD8
- HAPLOT
- ALL
- MAC
- DC
- NUC CO
- MOST

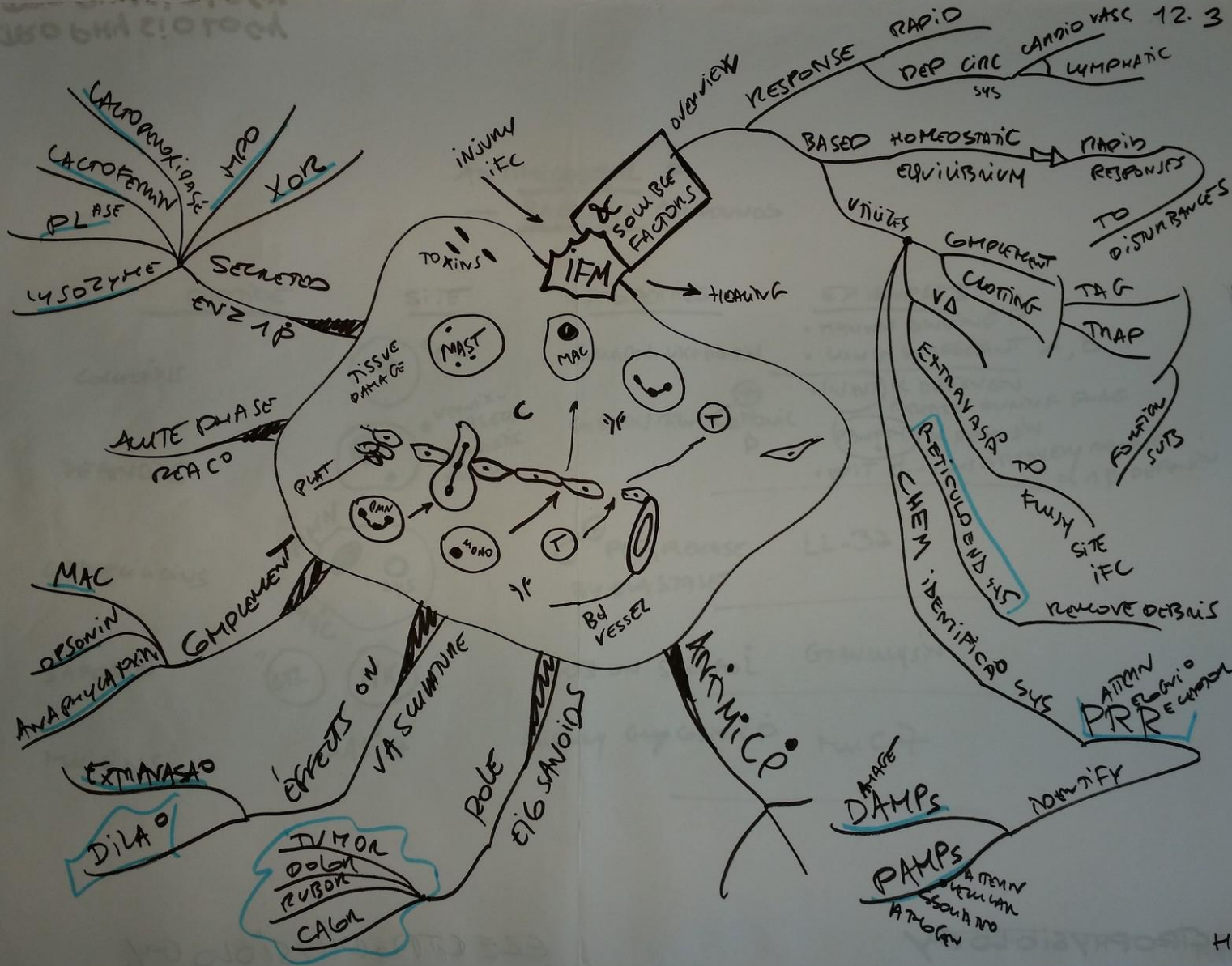


11.1.23

11.1

11.1





NL

HAX

ANTIMICROBIAL P
— BACTERIAL COMPOUNDS

<u>PEPTIDE</u>	<u>SITE</u>	<u>PROPERTIES</u>	<u>EXAMPLES</u>
COLLECTINS	• EC 	CHONDRO-LIKE DOMAIN	• MANNIN BINDING P • LUNG SURFACTANT A, B
DEFENSINS	• VOMIX-CASEINS • AMNIOIC FLUID 	CYSTEIN RICH CATIONIC P	• (NBT) α DEFENSIN RELEASE DURING PHAG • (PANTH) α DEFENSIN • EPIT φ - CONSTITUTIVE RELEASE α 1β DEFENSIN
CATHELICIDINS	PMN MAC LYS 	C ⁺ PEP, RELEASE BY ELASTASE	LL-37
SAPOSIN	? CTL NK 	ACTS ON SPHINGOL	GRANULYSIN
MUCINS	SALIVA	HIGHLY GLYCOSIDIC P	MUC7

ROLE EICOSANOIDS IN IFM

PRODUCTION

12.3

PG TX LT LIPOXINS

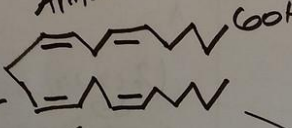
SIGNALS
POTENT

MB DERIVED LIPIDS

AUTOCLINE
PARACINE

ARACHNOID ACID C20
PRODUCE EICOSANOID

Aspirin
ibuprofen
indomethacin



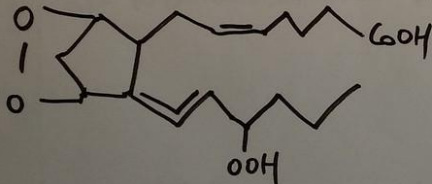
PLA2

LIPXYGENASE

Gx1
CONSTITUTIVE

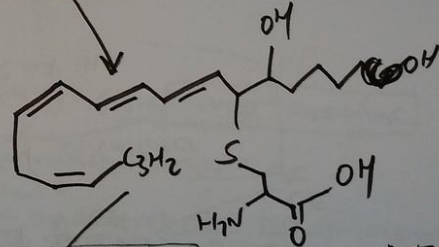
Gx2
INDUCIBLE

⊖ GC IL4
⊕ IL1 TNFα
GFs



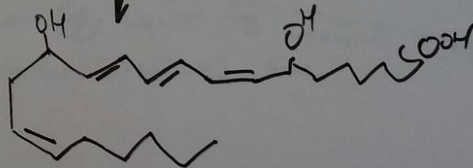
PG G2

PAIN & EDEMA



LT A4

LT A4
HYDROLYASE



LT B4

SMC CONTRACT
& INFLAMMATION

REGULATE VASC TONE

ON DEMAND**

ASPIRIN
ANALGESIC
TUMOR
PAIN
RUBOR
CALOR
Significant
role
+
IFM
Significant
role

NL

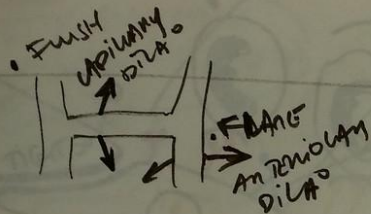
HAY

TYPES IFM

A

EXUDATIVE - U FLUID
 SUPRA VASC - (NEUT)
 FIBRINOUS
 SEROUS CAPSULE FLUID
 HEMOR - VASC DAM

LEWIS TRIPLE R →



• LOCAL: EXUDAT EDema

C

PERSISTENT PRESENCE OF NOXIOUS STIMULI →

INTERFERES WITH WOUND HEALING

NORMAL →
 MONONUC INFILMA^o LEUK^o PG
 TIS DESTRUCT^o
 RESOLV^o BY REGENERATIVE TIS OR FIBROSIS
 TIS INJ → ACE INHIBIT, PROSTAG^o A + PA
 FIB^o cytok^o PRODN TGFβ BUT ALSO DRY OF

PDGF
 FGF
 VEGF

IVHS

- ATTEMPT TO PHYSICALLY ISOLATE THE PATHOGEN WITHIN (MAC)
- LARGE NUCLEATED FORM & AS A SYNCTIUM OF (MAC)



GM ⊕ LYME TB syphilis VINAL HEPATITIS
 GRANULOMATOUS IFM

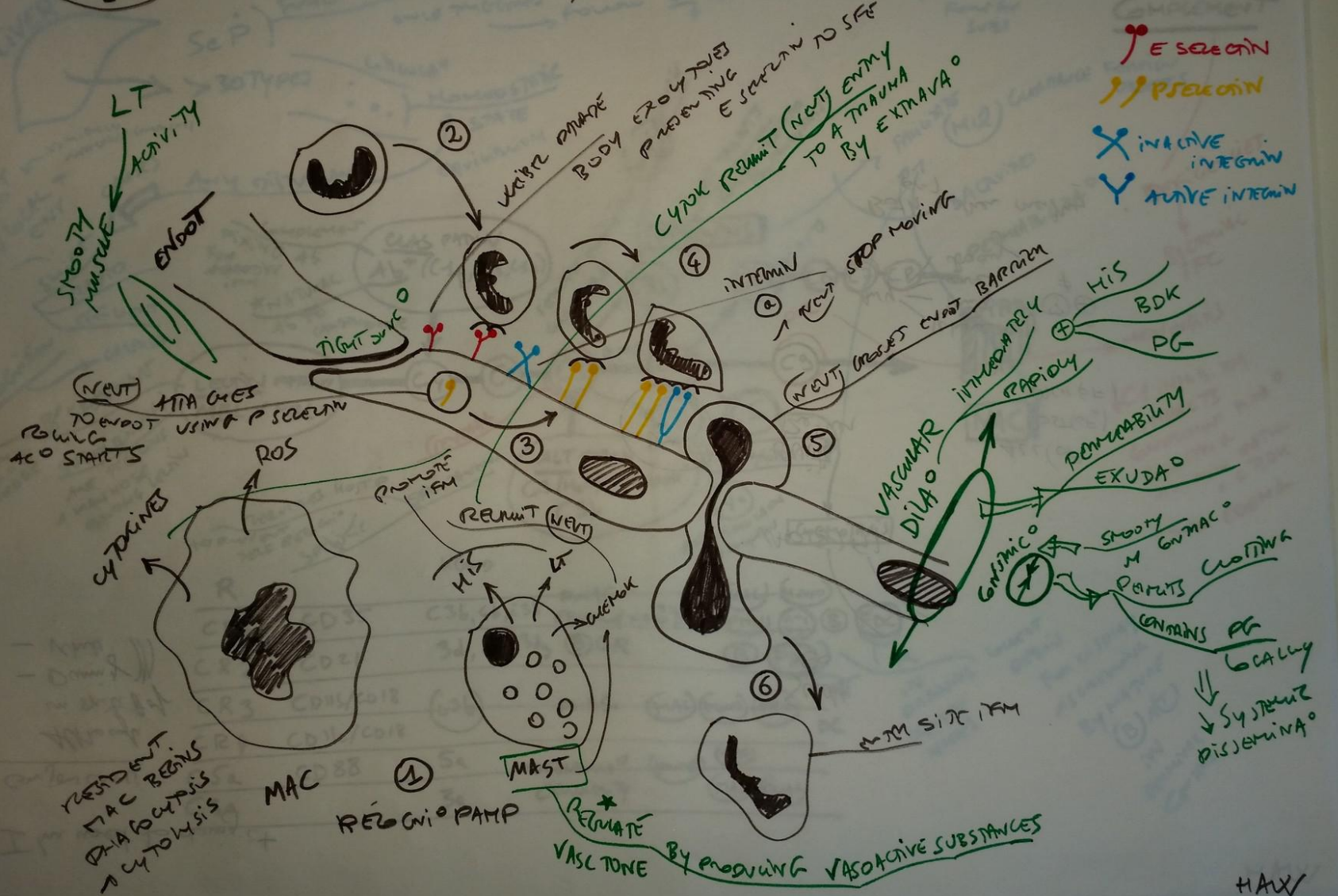
EX: TB WASSY SYPH GUMMA FB
 FUNGAL SILENSIS SANGUINOSIS

HAW

LEUKO EXTRAVAS^o ACROSS POST-CAPILARY WALLS

F ← P ?

12.3

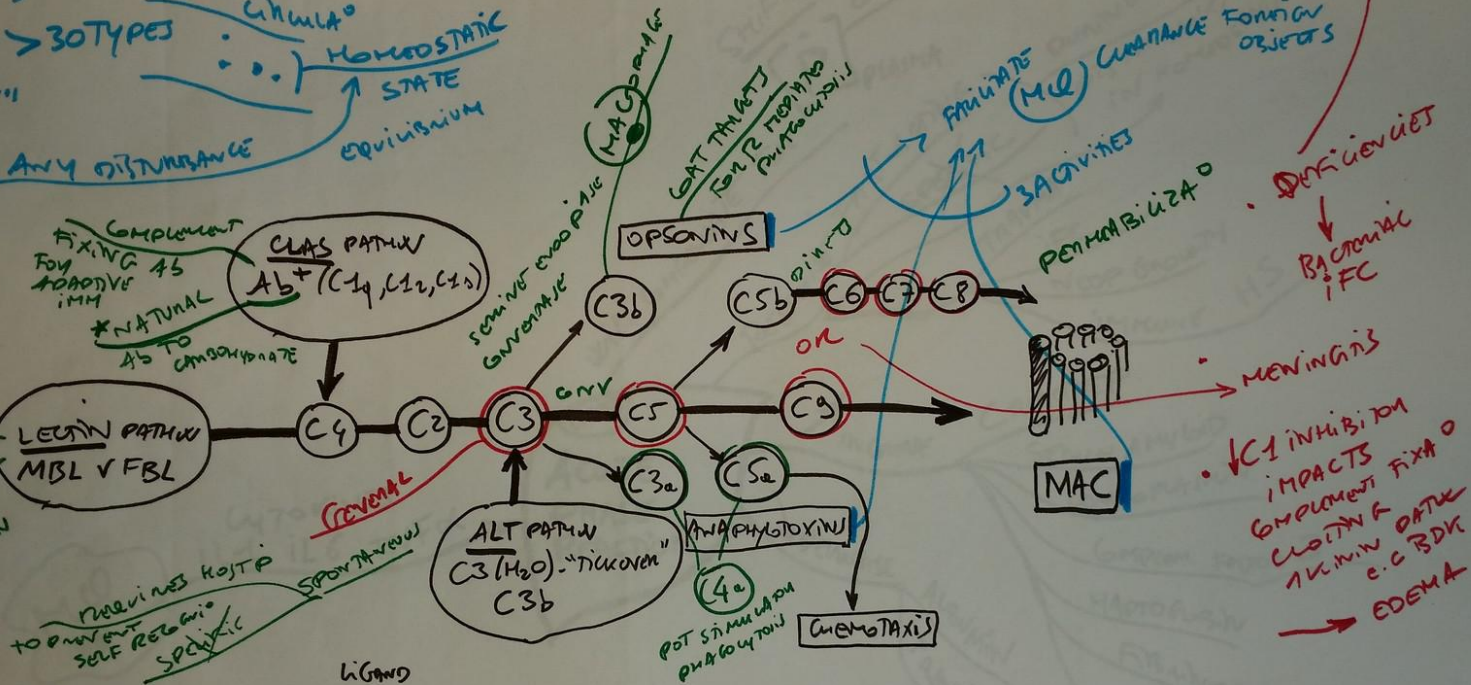


HAY

LIVER → SeP) FUNC^y INTEGRATED
 ON LG TRIGGERS → FOLLOW → INSTANTANEOUSLY → DATA FORMS SUBS

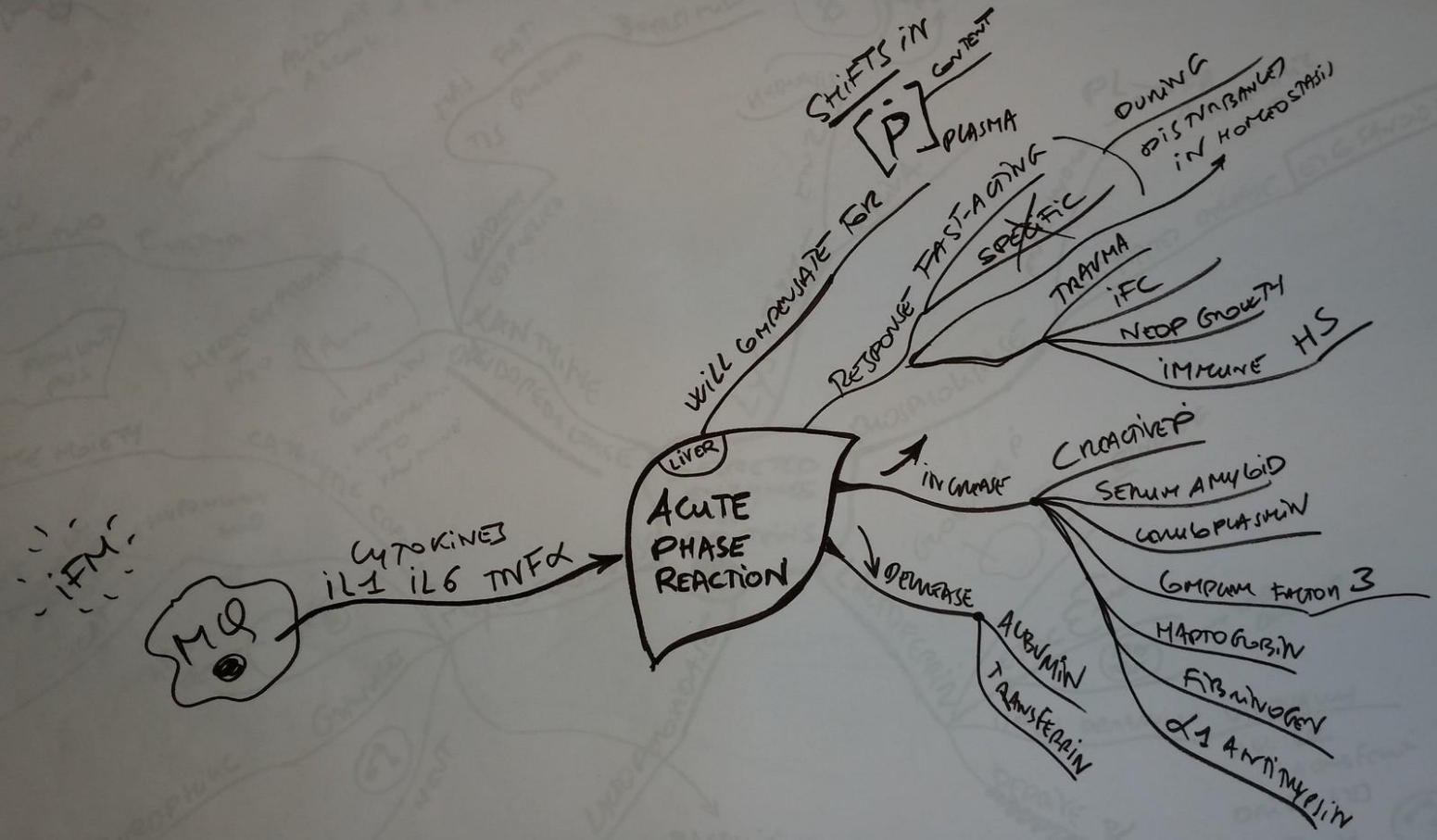
> 30 TYPES
 HOMOESTATIC STATE EQUILIBRIUM
 ANY DISTURBANCE

TO T SMITHS HIGHLY NATURAL (GAINING)
 IN LOCAL ENV
 SLEET → CAPLES
 RABID
 REGUATION → CAPLES
 B SPECS HAVE
 HIGH AFFINITY FOR
 MANNOSE
 SUGAR BINDING
 AND FIGURING
 A MANNOSE BINDING
 LEWIN



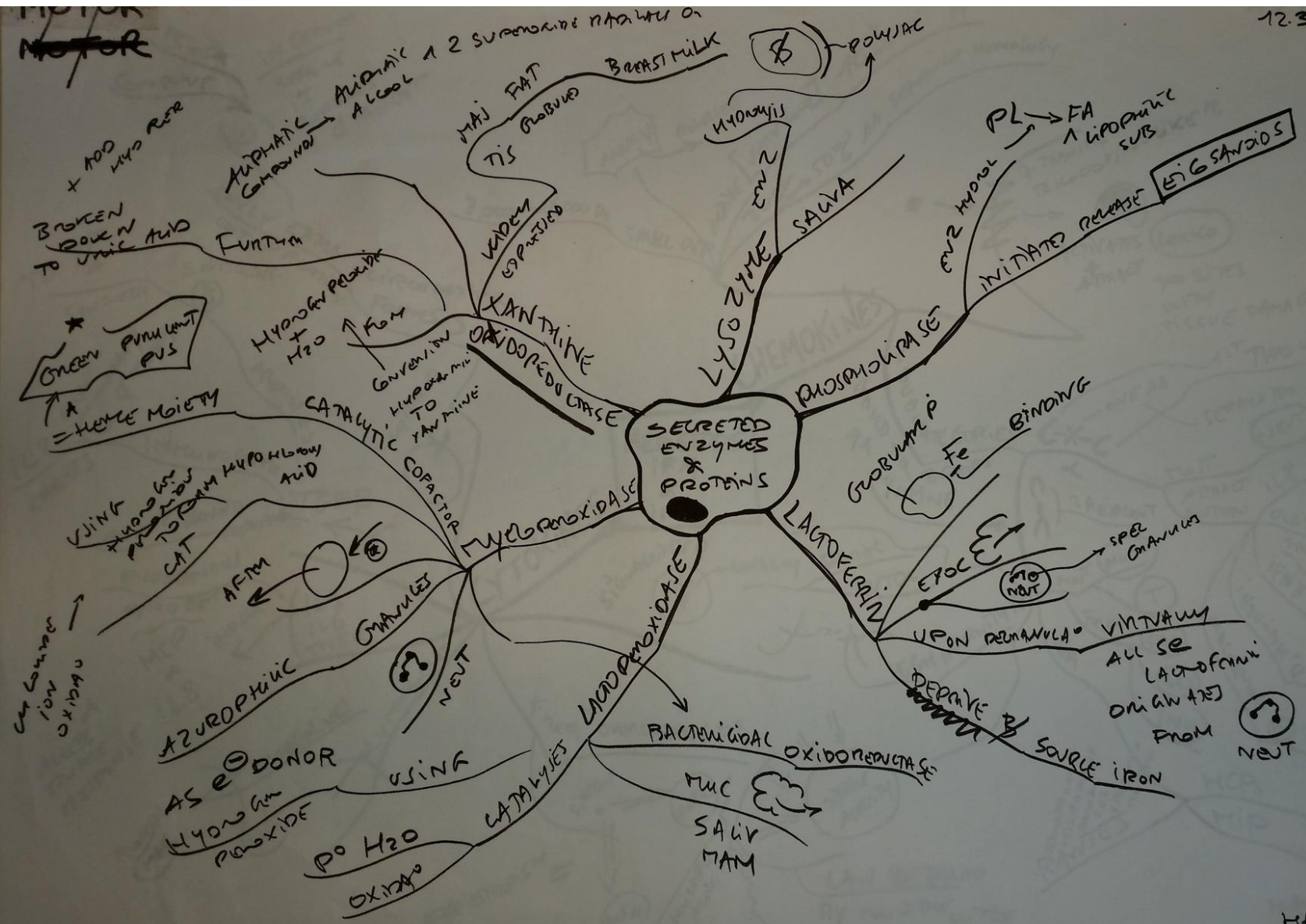
R	LI GAND		
CR1	CD35	C3b, 4b, i3b	PHAG → (MAC) (MONO) (PMN) (B) (FDC)
CR2	CD21	3d, i3b, 3dg	(B) GR → (B) (FDC)
CR3	CD11b/CD18	(i3b)	PHAG → (MAC) (MONO) (PMN) (FDC)
CR4	CD11c/CD18		DC
C5a	CD88	5a	DEGRANULATION (MAST) (PHAG)
C3a		3a	COMMITMENT (MAST) (PHAG)

IN DRAWING LYMPH NODES
 GUEST DEBIL FOR DISPLAY AS CIRCULAR BY MAPPING (B) AT IN GENITAL CENTERS



~~NO LITIN V X~~ HAW

SECRETED ENZYMES & PROTEINS



NL

HAW

Block in Cytum
 Before it releases
 its target

injury released

8,000 → 16,000 Da

ACV [very low] 10^{-8} → 10^{-11} M

30% → 50% AA

SEQUENCE Homology

7 TRANSMEMBRANE
 RHO GTPase - like R

ACTIVATES + ATTRACT

LEUKO TO SITES WITH TISSUE DAMAGE

CHEMOKINES

MEDIATORS
 IFM & IMM

CYTOKINES

ONLY EXTRA CYTOSOLIC PORTION

CIRCUATING FORMS

TO 7F A SYNTHESIS

SWITCHING

PROMOTES

IMMUNOSUPP

POTENT SOUND HEARING

ENDOGENOUS PYROGENS

INVOLVE

MCP → IL8

MONOCYTES

IL1, IL6, TNF α

IL2

EFFECTS

PROMOTE GROWTH & TRAFFIC

TGF β

IL2

IL2

IL2

2 SUBCLASSES

BASED ON 9A CYSTEINE

20 PAIRS

ONE AA

SEPARATES

NEUT

MOST ATTRACT NEUTROPHILS

PLATELET FACTOR

IFN γ

INDUCIBLE P10

MACROPHAGE

IFN γ

C-X-C

2 ADJACENT

MOST MONO

FEW

VIA

CD11b

CD11c

CD11d

CD11e

CD11f

CD11g

CD11h

CD11i

CD11j

CD11k

CD11l

CD11m

CD11n

CD11p

CD11q

CD11r

CD11s

CD11t

CD11u

CD11v

CD11w

CD11x

CD11y

CD11z

HIGH AFFINITY R

SYNTHESIS

LOCALLY

PARAC

AUTOE

HIGH AFFINITY R

NEQ OVERLAPPING

SINGLE

MULTIPLE

PRIOTROPISM =

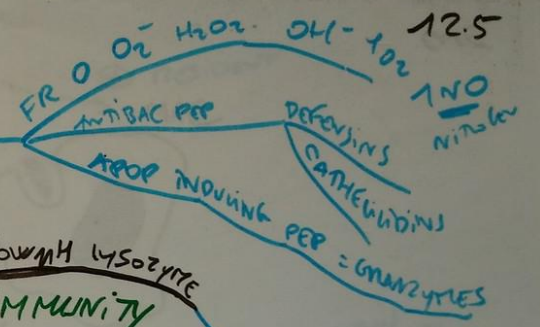
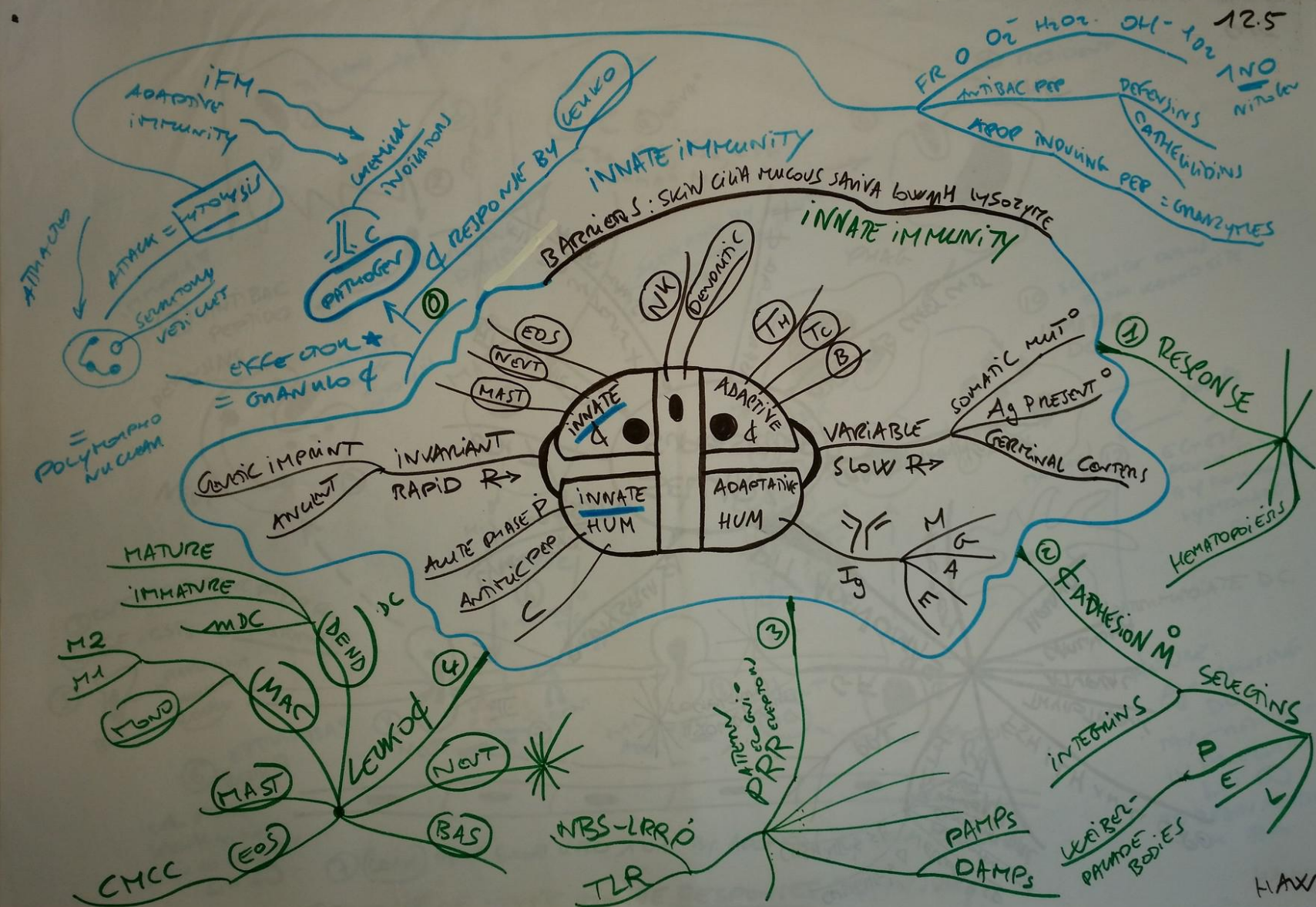
CAN BE AIDED BY MULTIPLE CYTOK

RAVITES

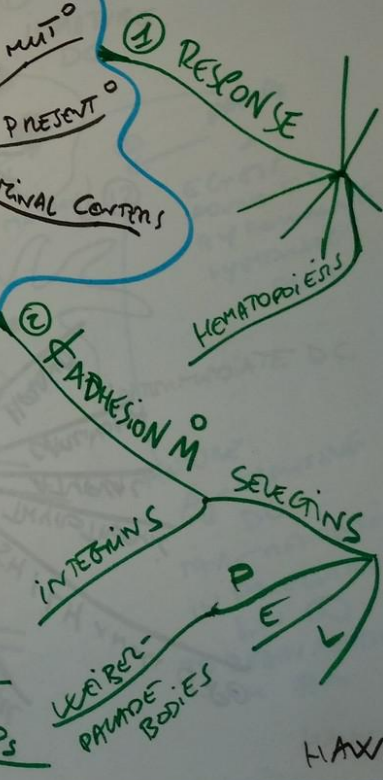
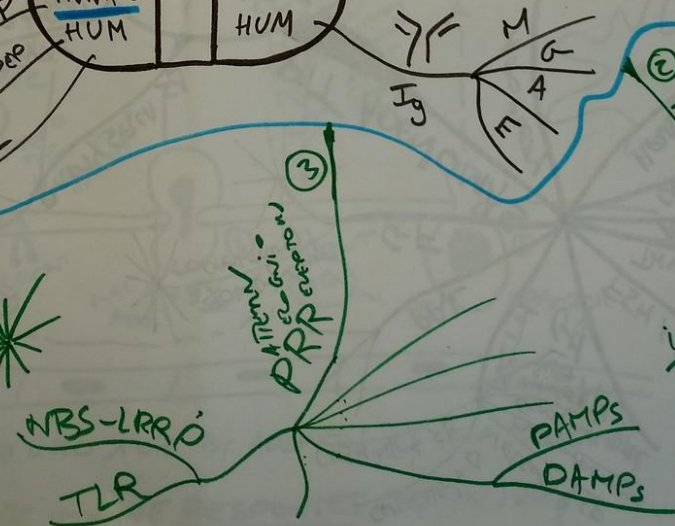
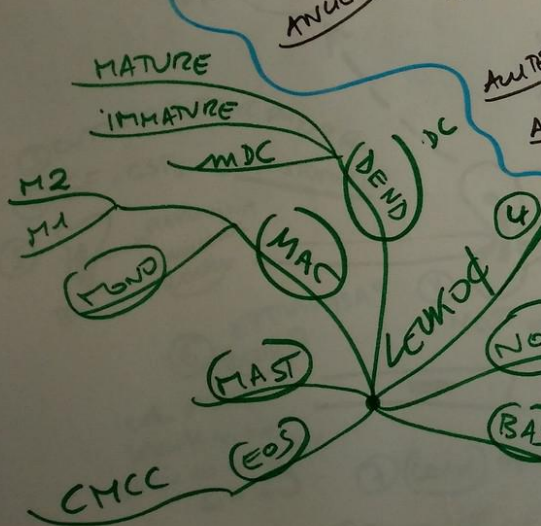
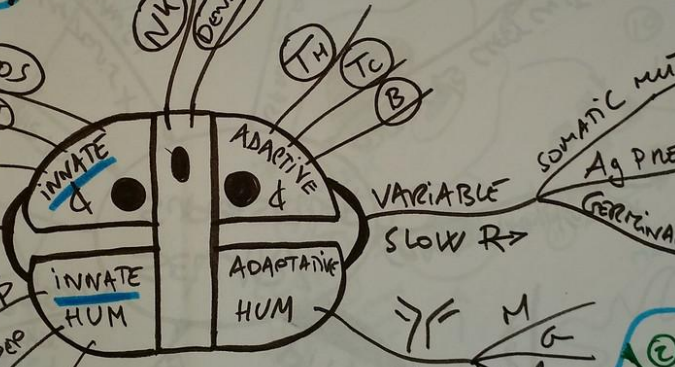
MCPs

MIP

HAXV

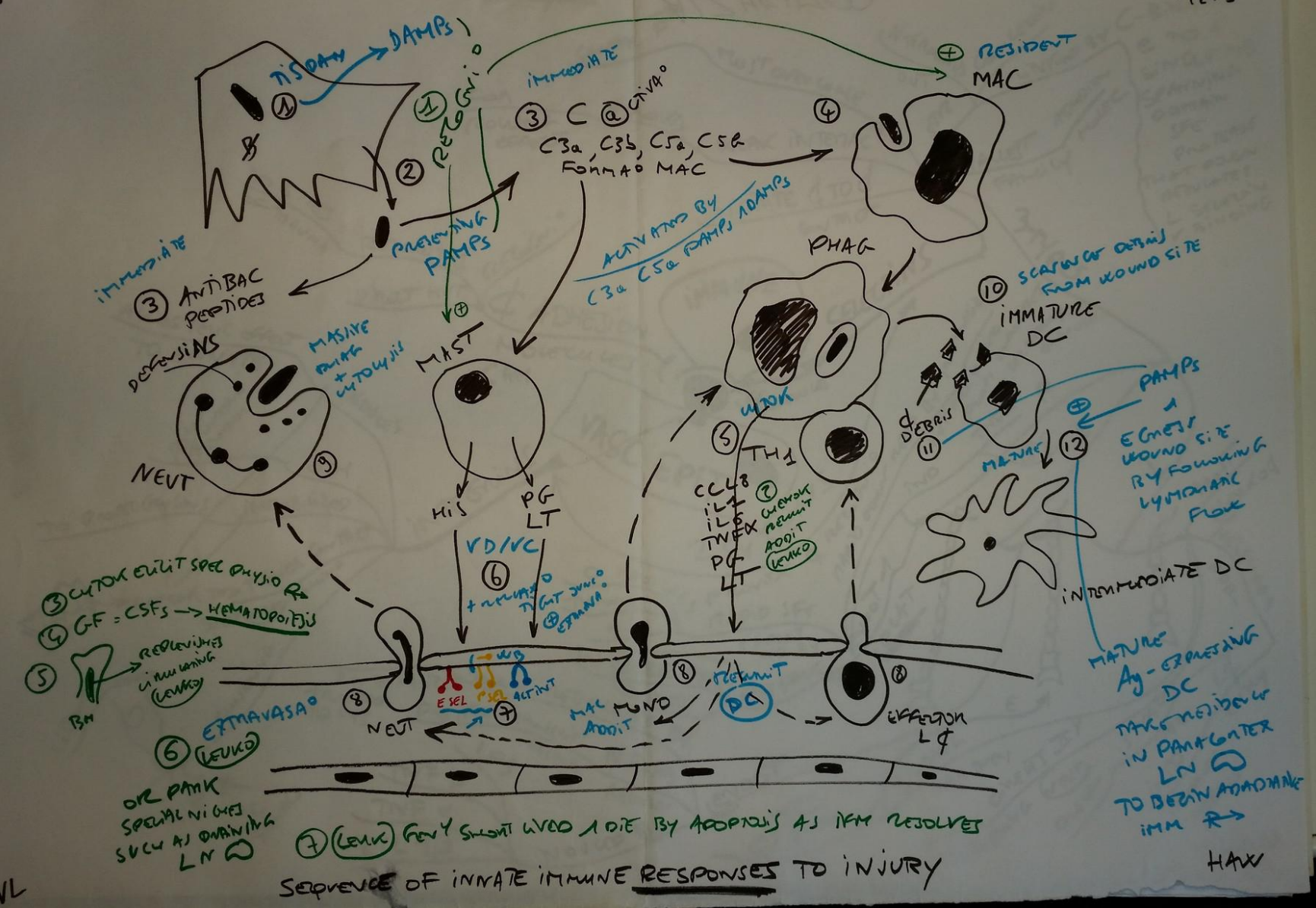


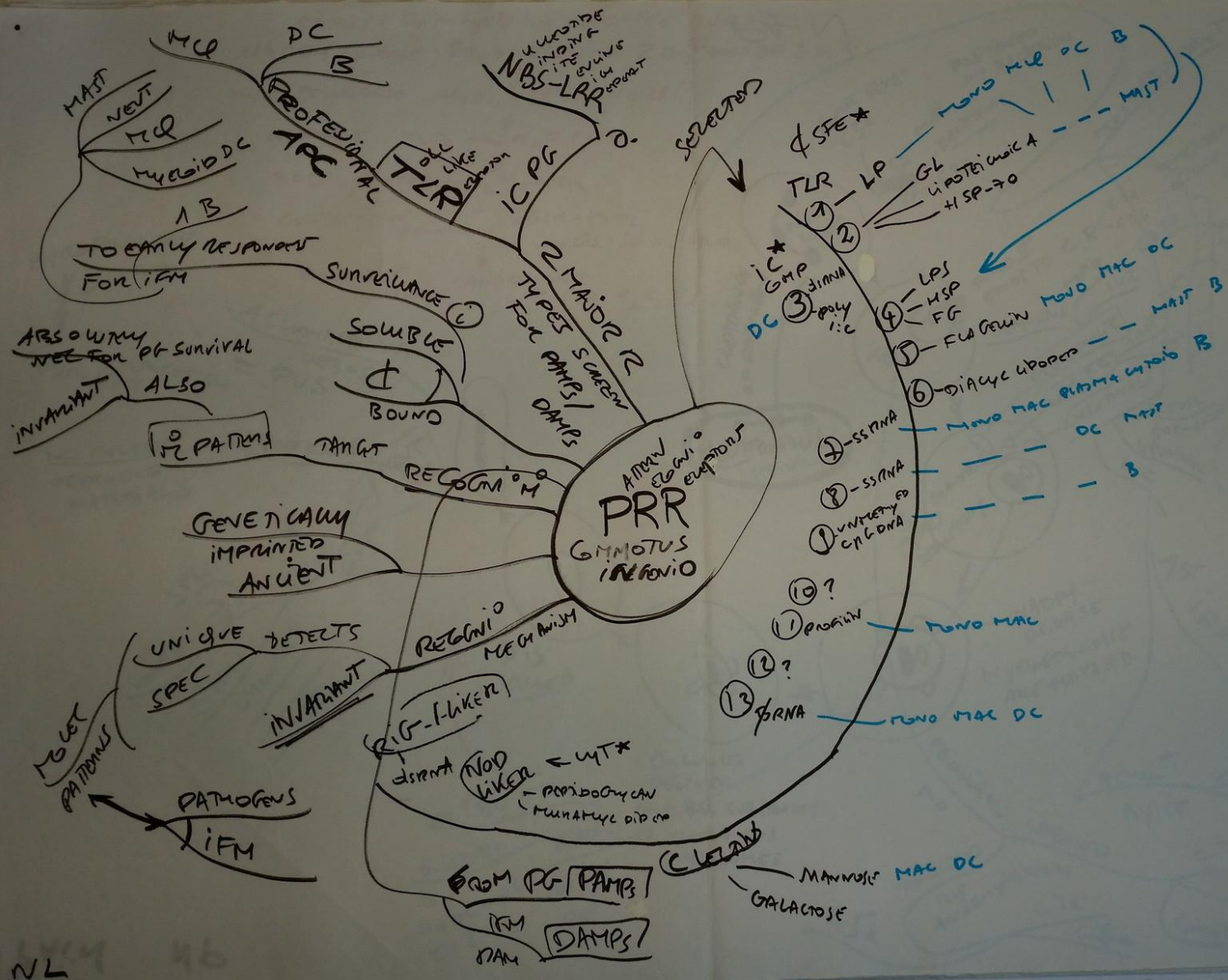
INNATE IMMUNITY



NL

HAX





NL

HAX

STEPS IN CYTOLYSIS BY OXIDATIVE BURST
 NADPH OXIDASE: $2O_2 + NADPH \rightarrow 2O_2^{\ominus} + NADP + H^{\oplus}$

MYELOPEROXIDASE: $H_2O_2 + Cl^{\ominus} \rightarrow HOCl^{\ominus}$

CATAPLASE: $H_2O_2 \rightarrow H_2O + O_2$

SOD: METAL + $O_2^{\ominus} \rightarrow O_2$

GLUTATHIONE PEROXIDASE: $2GS-SH + H_2O_2 \rightarrow GS-SG + 2H_2O$

PROSTATE GLUTATHIONE PEROXIDASE - ANTI-OXIDANT VIT (C, A, S, E)

MYELOPEROXIDASE
 GME FROM

PURULENT OR PURISH = PUS

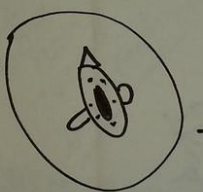
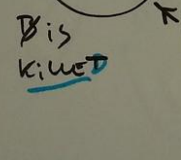
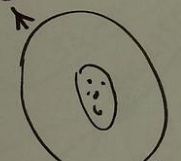
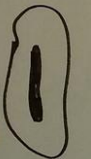
ACUMULATING DEBRIS = PUS

TO RELEASE DEGRADED MATERIALS

APOPTOSIS

NOT DIES

Spleen
 Gran
 GMS
 Granulo
 * FLIGHT LIVE



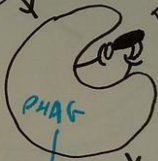
ox^o BY FR

DIGESTION BY HYDROLYTIC ENZ
 Kitex
 Anti B
 Pop

GRANULES DELIVER ANTI-BAC SUBSTANCES IE DEFENSINS LYZOSOMES

NEUTROPHILS STAINING

CHARACTERISTIC OF PATHOGEN



Principal
 C5a
 Migrate by chemotaxis
 C3e
 C4a

NADPH OXIDASE
 MYELOPEROXIDASE ARE ACTIVATED

DEFENSINS
 MPO
 Lu2

azurophilic granules
 SPECIFIC
 CELULINASE
 AETYL GLUCONAMINIDASE
 LYZ

7th IFM

RECRUIT BY CT

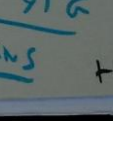
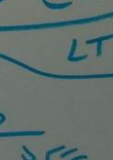
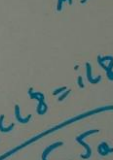
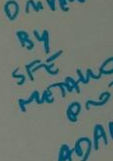
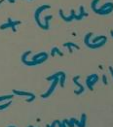
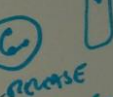
LABELED
 C3b
 C5a
 C4a
 CONTAINS
 HAW

CONCL FIXA^o
 C3a
 MAC
 BACTERIUM
 C3b
 POSITIONED ON BACTERIUM

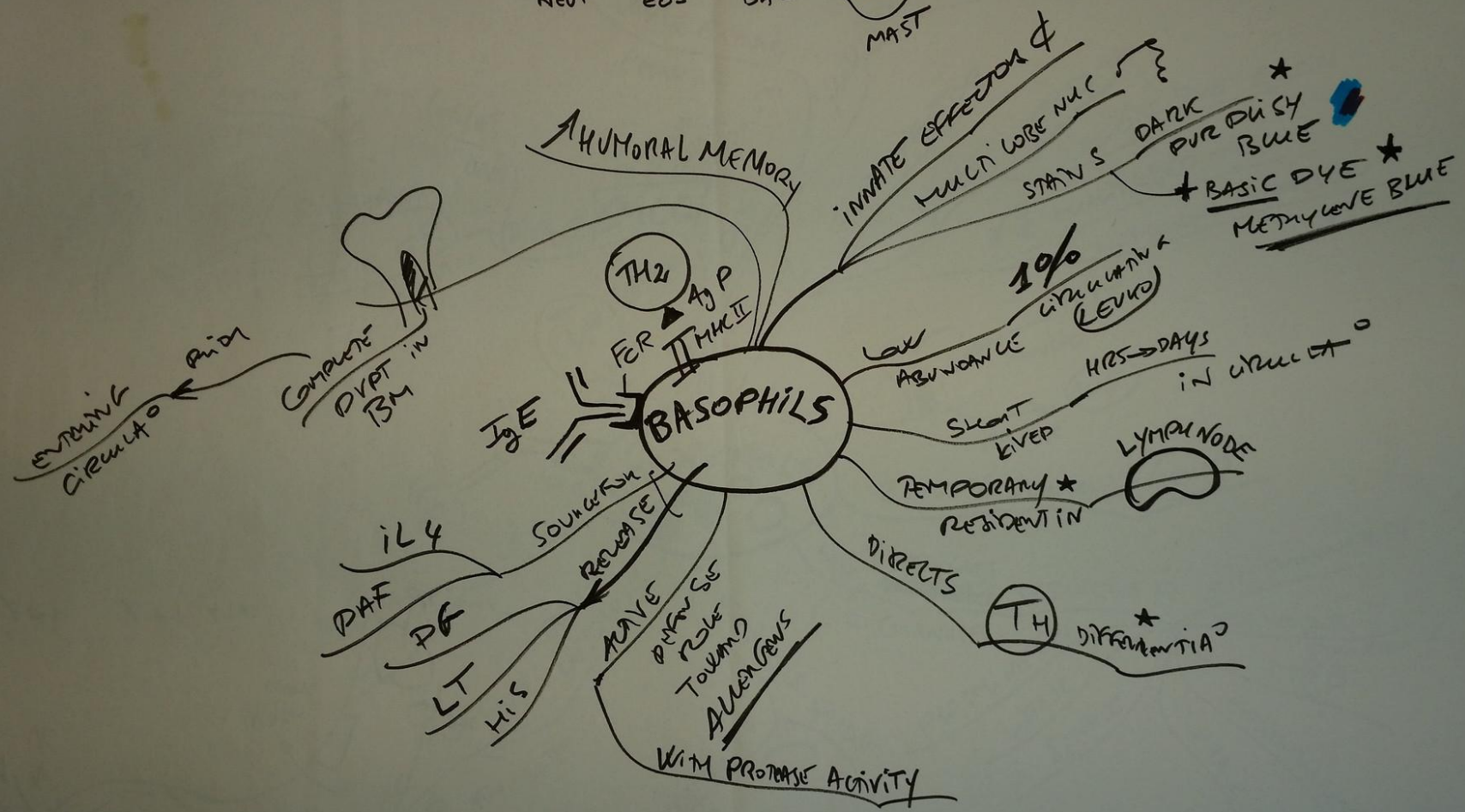
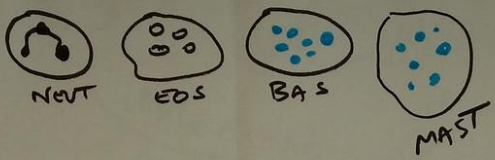
METABUNDANT

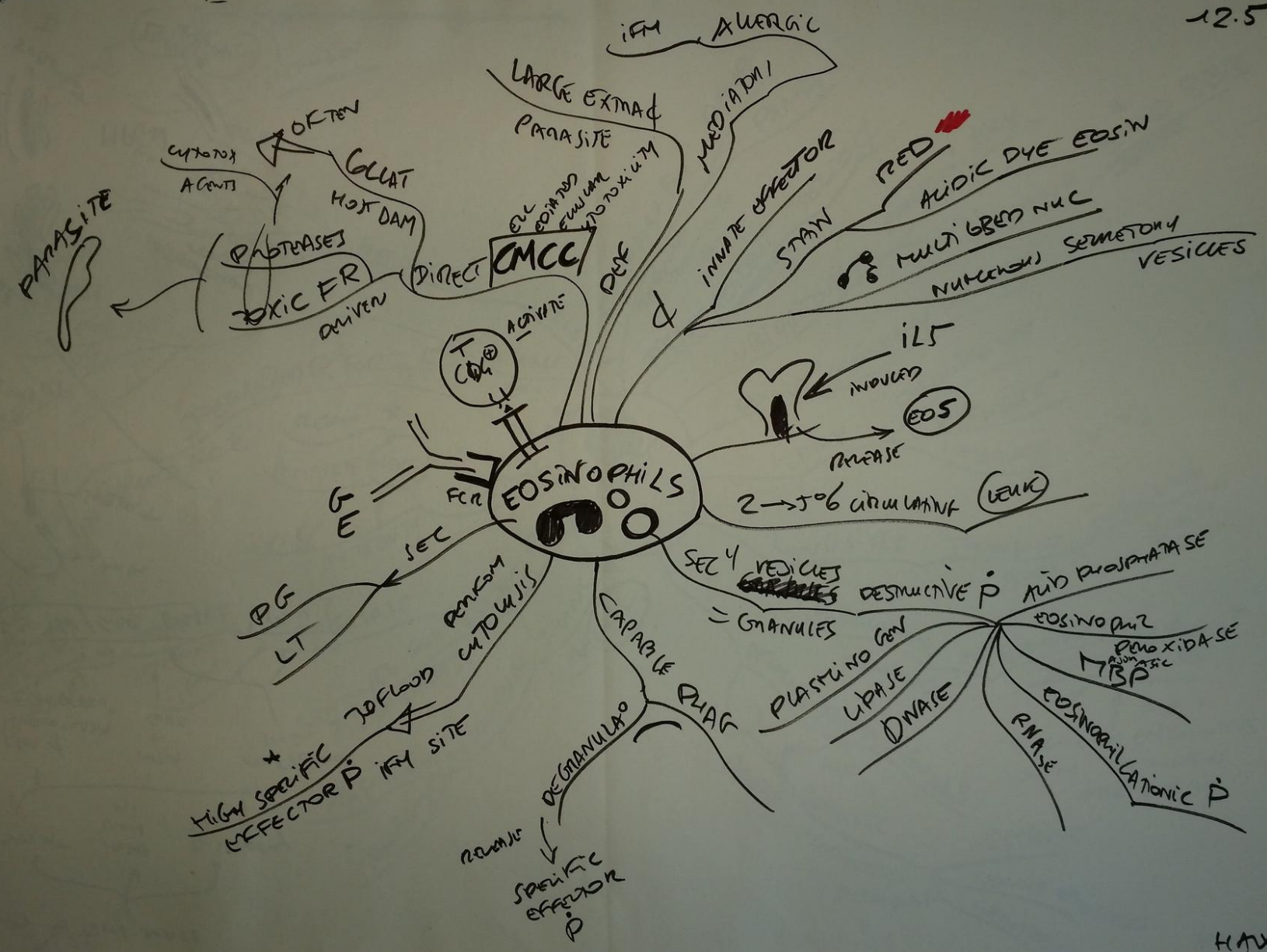
12.5
 60%

CIRCULATING
 TEMPORARY NUDGE AT SFE VASCULAR MUMEN
 CD34
 CD34
 CD34



MAXIMUM MARINA U2A0
 + Fw6-
 GATING
 => SPIKE
 DRIVEN BY SFE METALLO PROTEINASE ADAM-8





PERMIT (NEUT) (MAC) INTRUSION

PAF
LT
PG-D?
TX
REACTIVE I
SOURCE FOR
RELEASE
FUNCTION FOR
THREAT SURVIVING FOR

↑ GYMPASE
TRYPTOPH
SEN PROTAGES
HEPATIC PG
H.I.J

MAST

TISSUE RESIDENT MYELOID Φ
UBIQUITOUSLY
DO NOT ORDINARILY CIRCULATE
MAY PROLIFERATE
DIFFERENTIATE
MATURE IN TIS

PLACED IN BODY
INCLUDING * BEHIND BBB

LONG LIVED THROUGHOUT BODY
INCLUDING BRAIN

PARTICULARLY AT BOUNDARIES TO ENVIR^T
ENRICHED
↑ * * *
WHOLE ENIGMAS
WITH PATHOGENS
ARE LIKELY

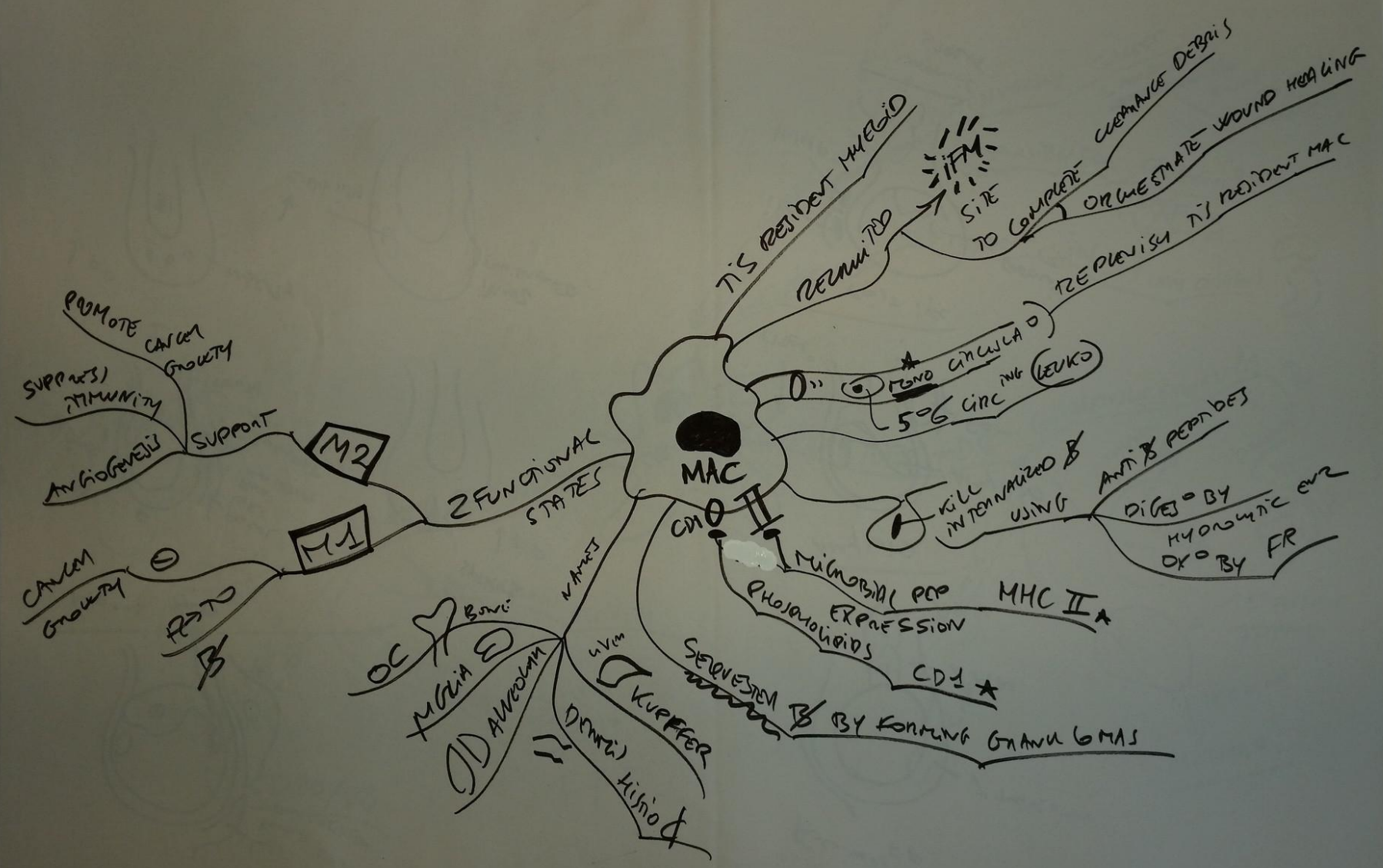
PROTECT TO TRAUMA SIGNALS
AND
RELEASE SPECIFIC MEDIATORS INCLUDING
HISTAMINE
LEUKOTRIENES
SEROTONIN

SPECIALIZED FOR I_E
CALLED FCE
REMIT *
INITIATE NEUT
VASC INTENSITY

SENSORY MECHANISM
FOR PROINFLAM
MOLECULES

ADAPTIVE
IMMUNE
IFN

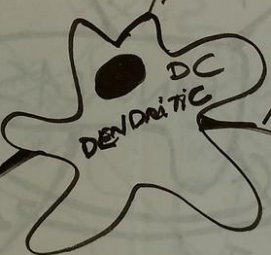
REGULATE
SENTINEL FOR
DISTURBANCES
APPEAR IN INCLUDING
PHAGOCYTES
IN (MAC)



PAMP dependent
low Tregs by
T_H1_H1_H PAMP
IL12

POTENTIAL
TO PROMOTE
IL12
↑ EXPRESSION
OF RECEPTORS
CD80/88

MATURE mDC



IMMATURE mDC

RESIDENT IMMATURE
MATURE mDC TAKE RESIDENCE
IN T_H1_H1_H IMM ORGANS

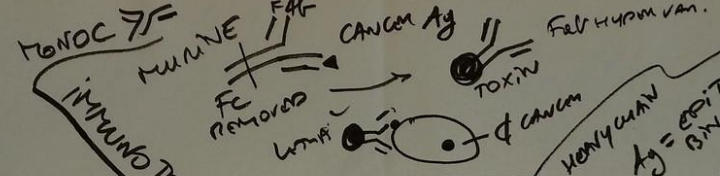
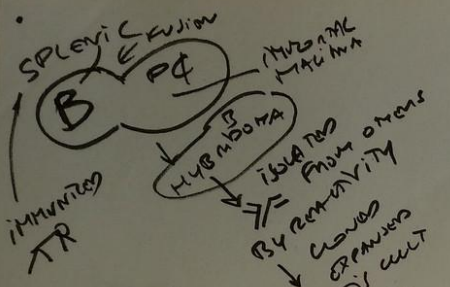
CONTINUOUSLY
RESPONSIBLE FOR REGULAR
GUEST SAMPLINGS FROM
INTERSTITIAL
FLUIDS

CONTINUOUSLY PRODUCE Ag FOR
PRESENTATION TO NAIVE
T_H

MIGRATES
TO LN

EXPOSURE
TO PAMP
INDUCE
MATURATION

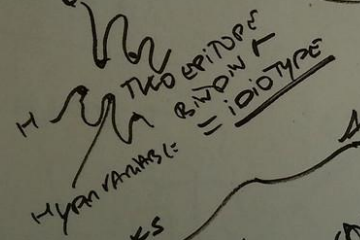
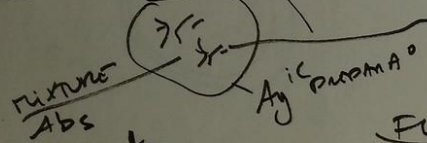




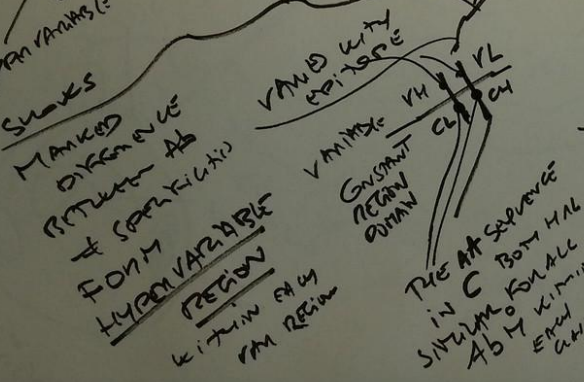
DESIRED
 SPECIFICITY

ANTIBODIES

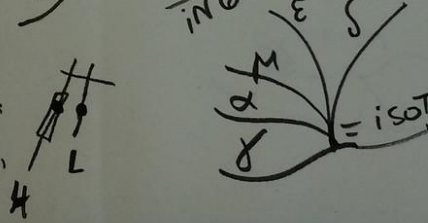
MONOCLONAL Ab



DOMAINS

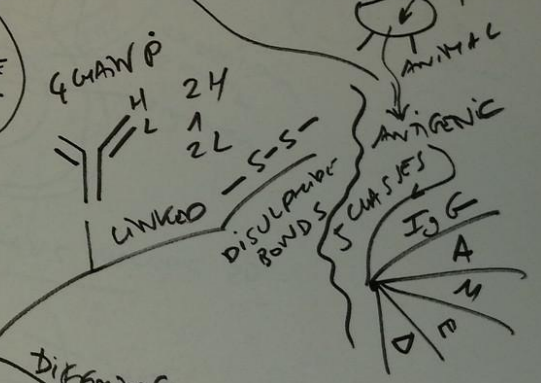


2 ISO TYPES
 IAA ALLS CHAINETS
 IN GERMUN L*



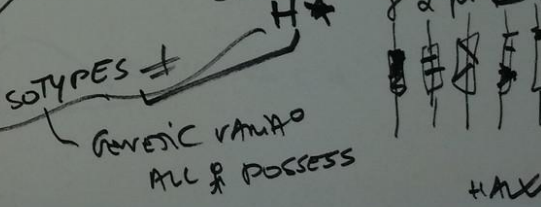
HEAVY CHAIN
 Ag = EPITOPE BINDING SITES
 LIGHT CHAIN

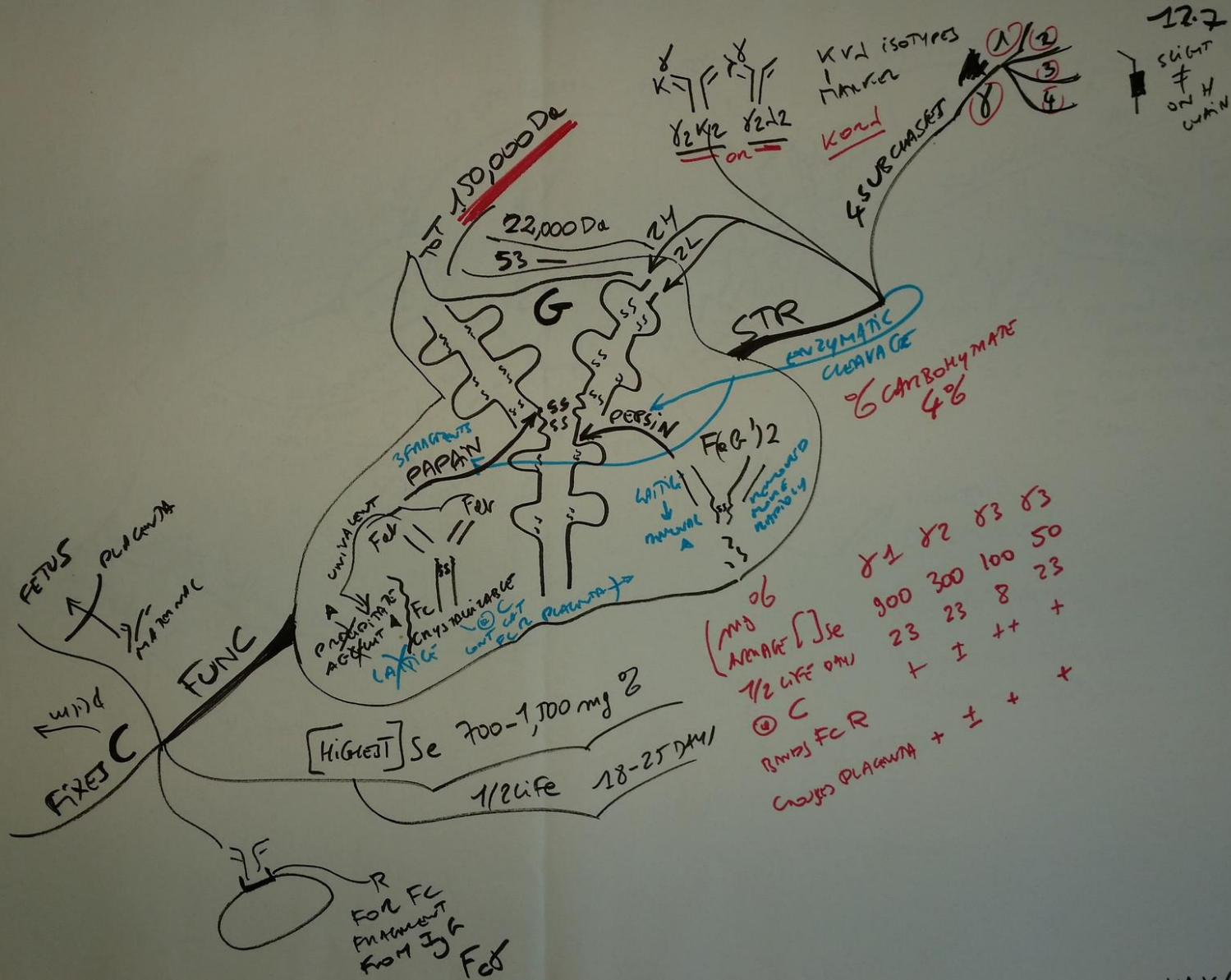
DEF (MUGP)
 MAINLY POSITIVE FRAC⁰
 Se on Eq
 injects
 ANIMAL



DIFFERIN G SHORT AA SEQUENCE

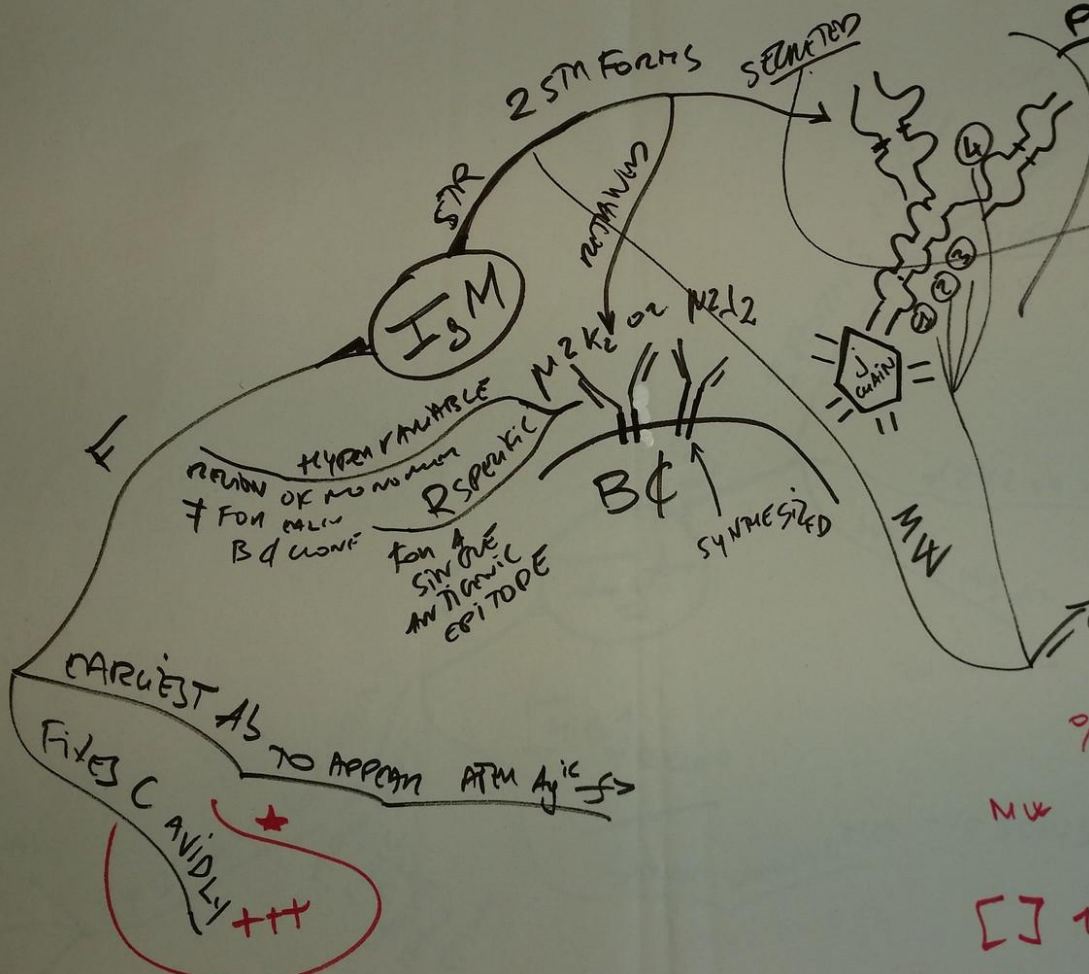
SCHASSES EACH SPECIFIC FOR



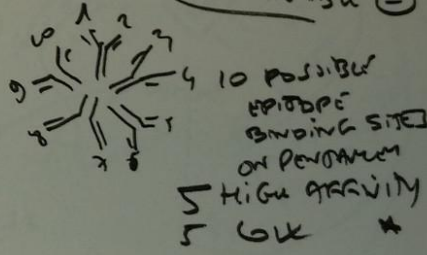
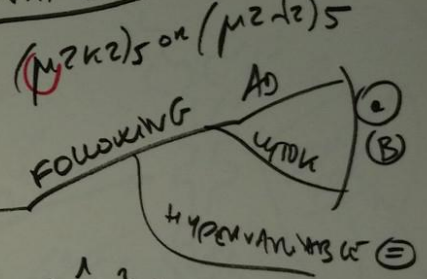


NL

HAW



PENTAMER



HIGHEST ~ 1 million

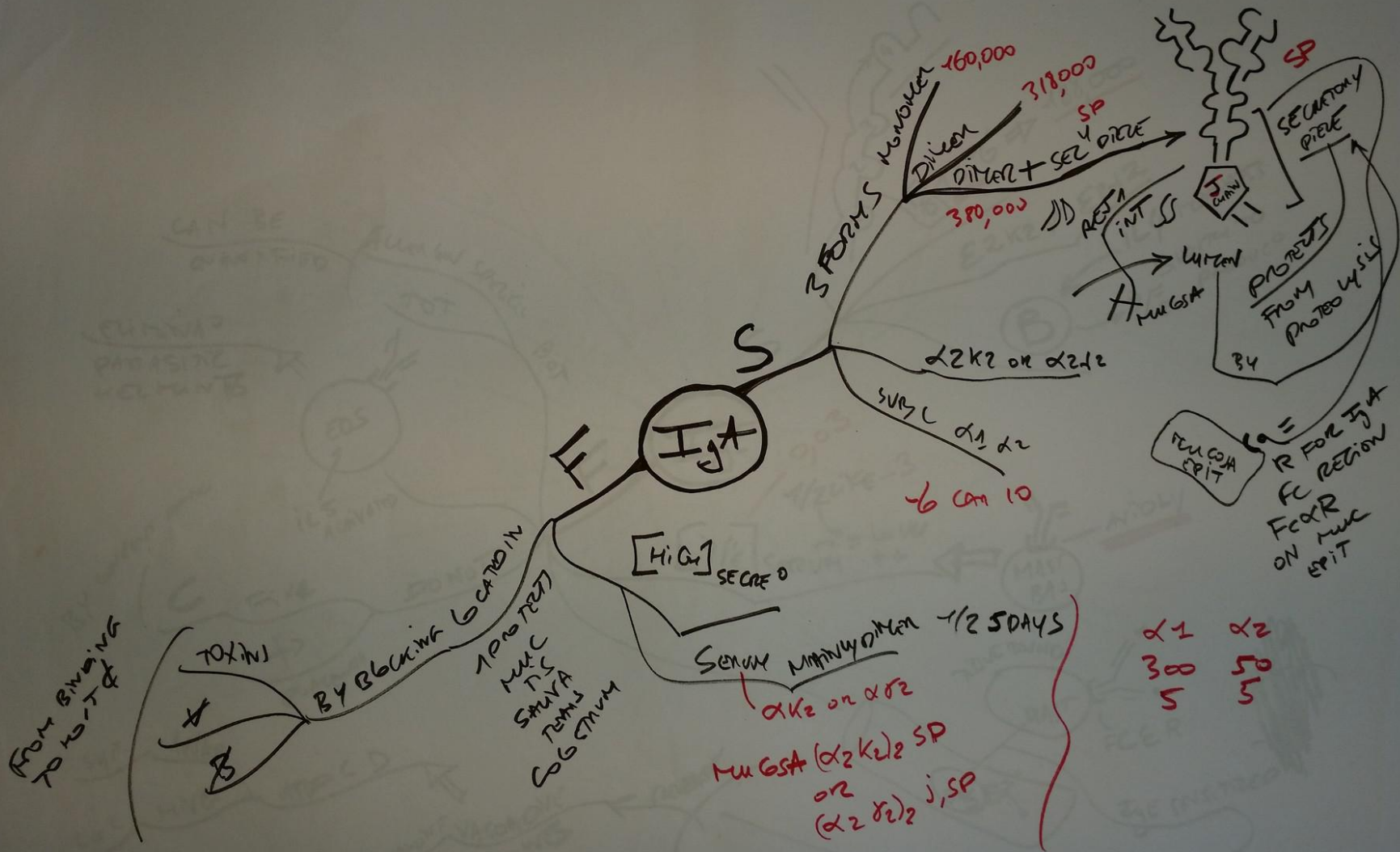
% CARBOXYLATE 15

MW Monomer 180,000
 Pentamer 950,000

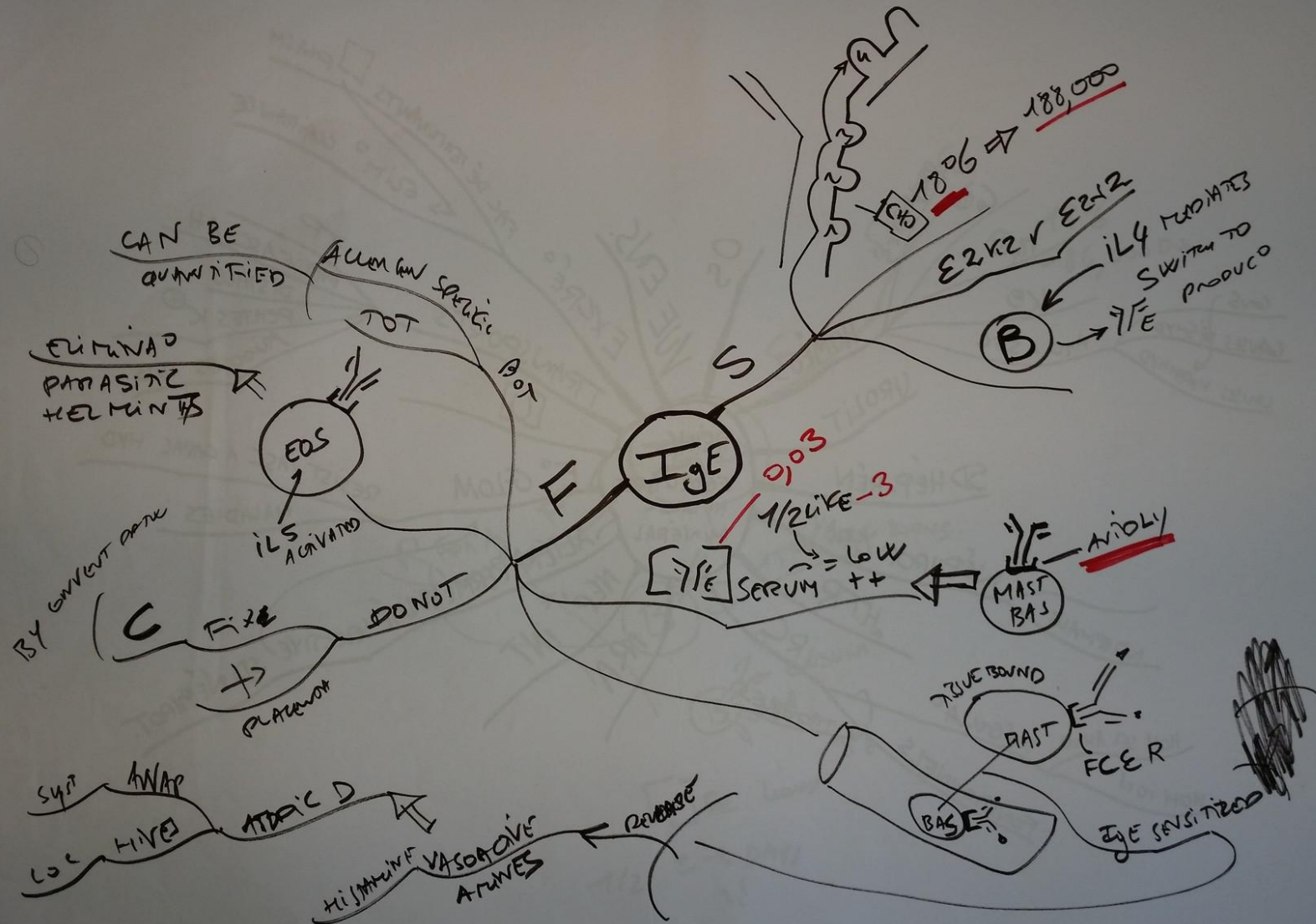
[] 150

1/2 5

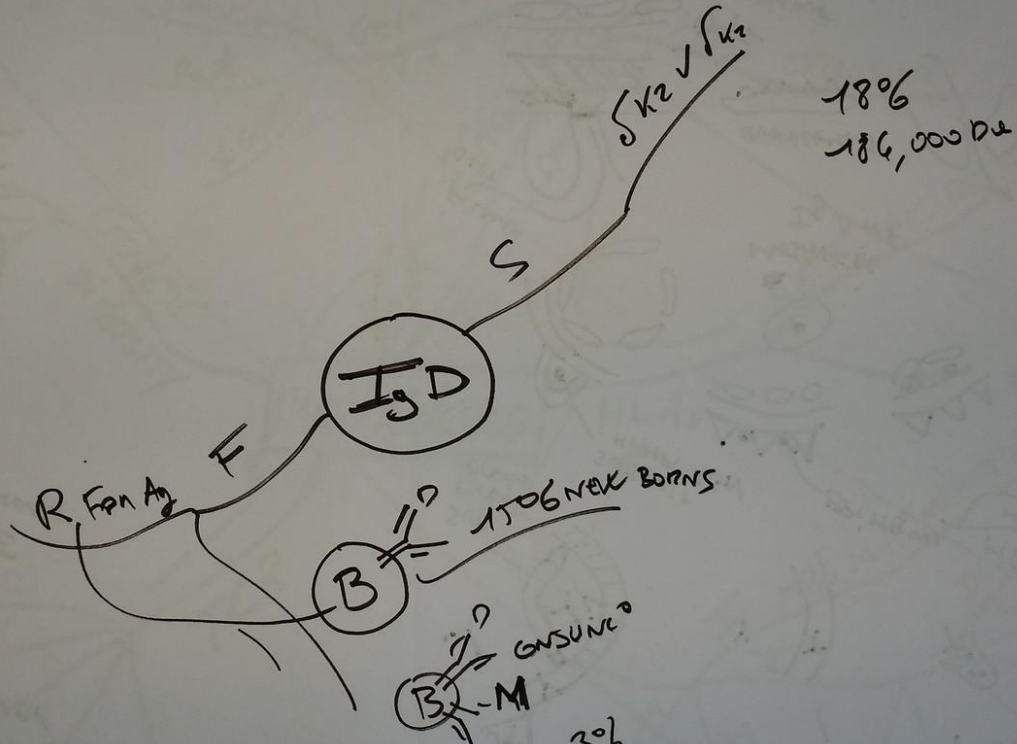
PLACENTA -



HAX

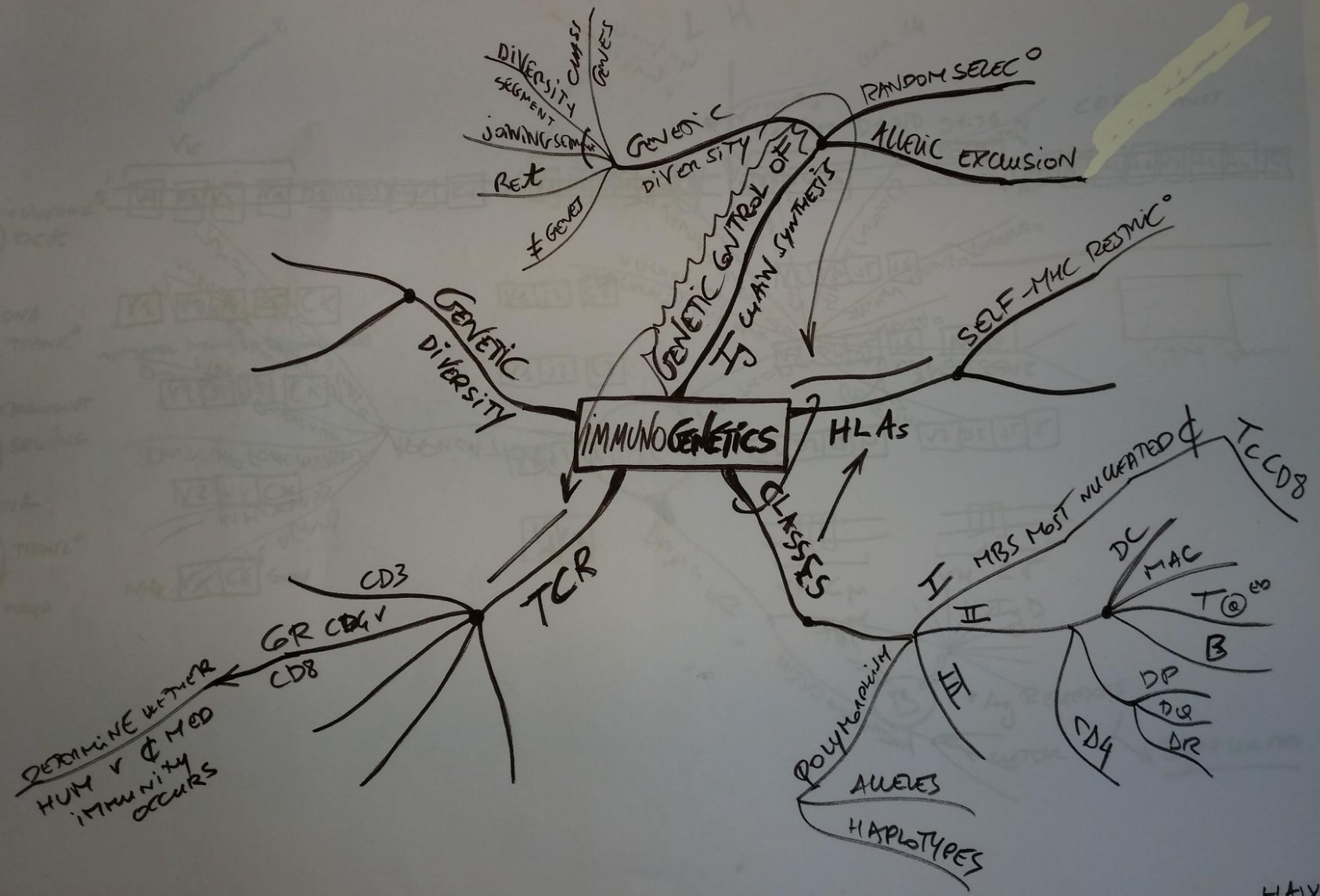


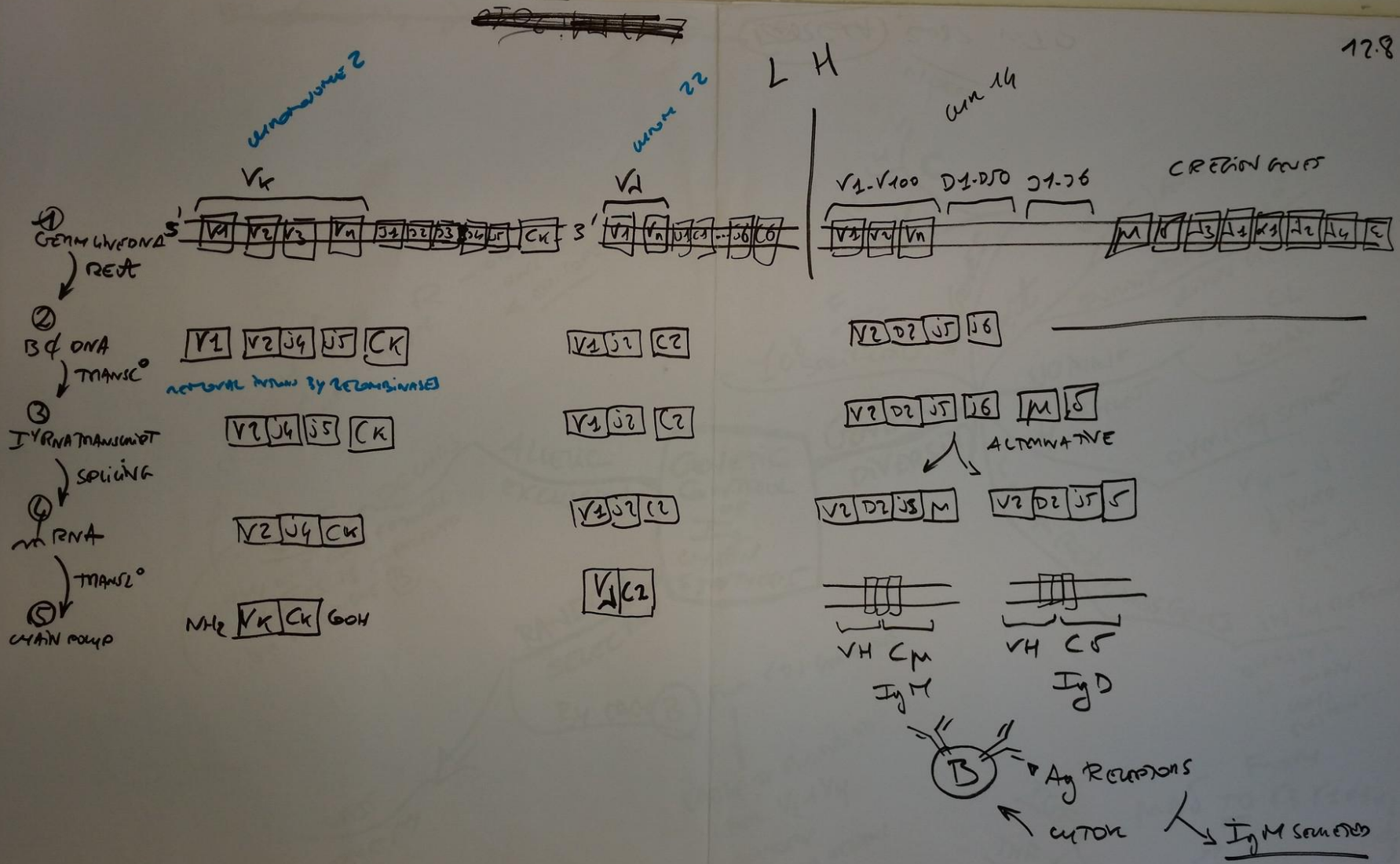
MAX



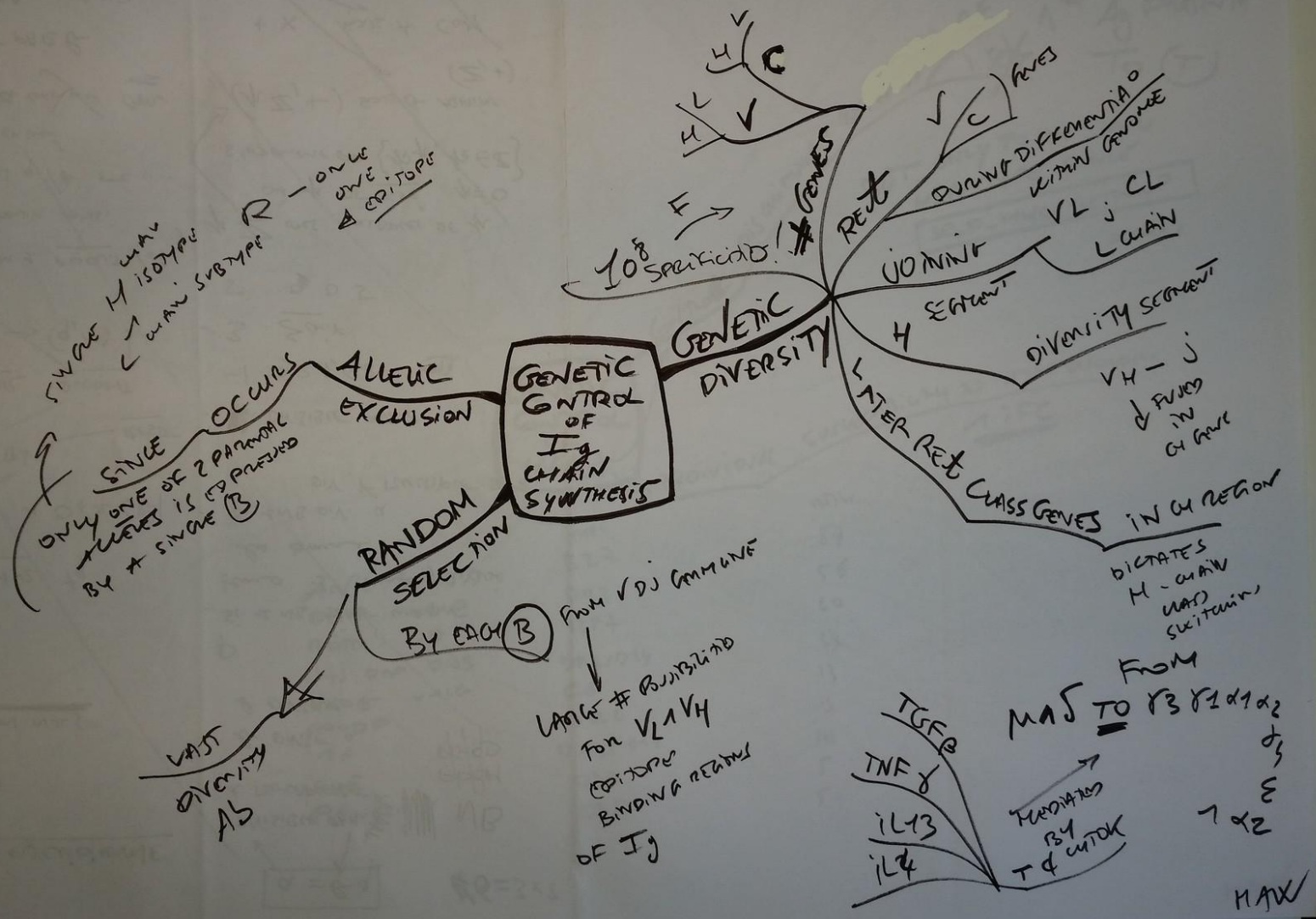
[] se low
 1/2 2-3 DAY
 2/5

HAN





~~GIVE CONT DR 121 P 28~~



GENETIC CONTROL OF HLA

Controlled DISCRIMINATION BETWEEN SELF AND ~~SELF~~ ^{1*} Ag PRESENTATION TO (T)

BUT ONLY TO THE SAME HLA TYPE SINCE

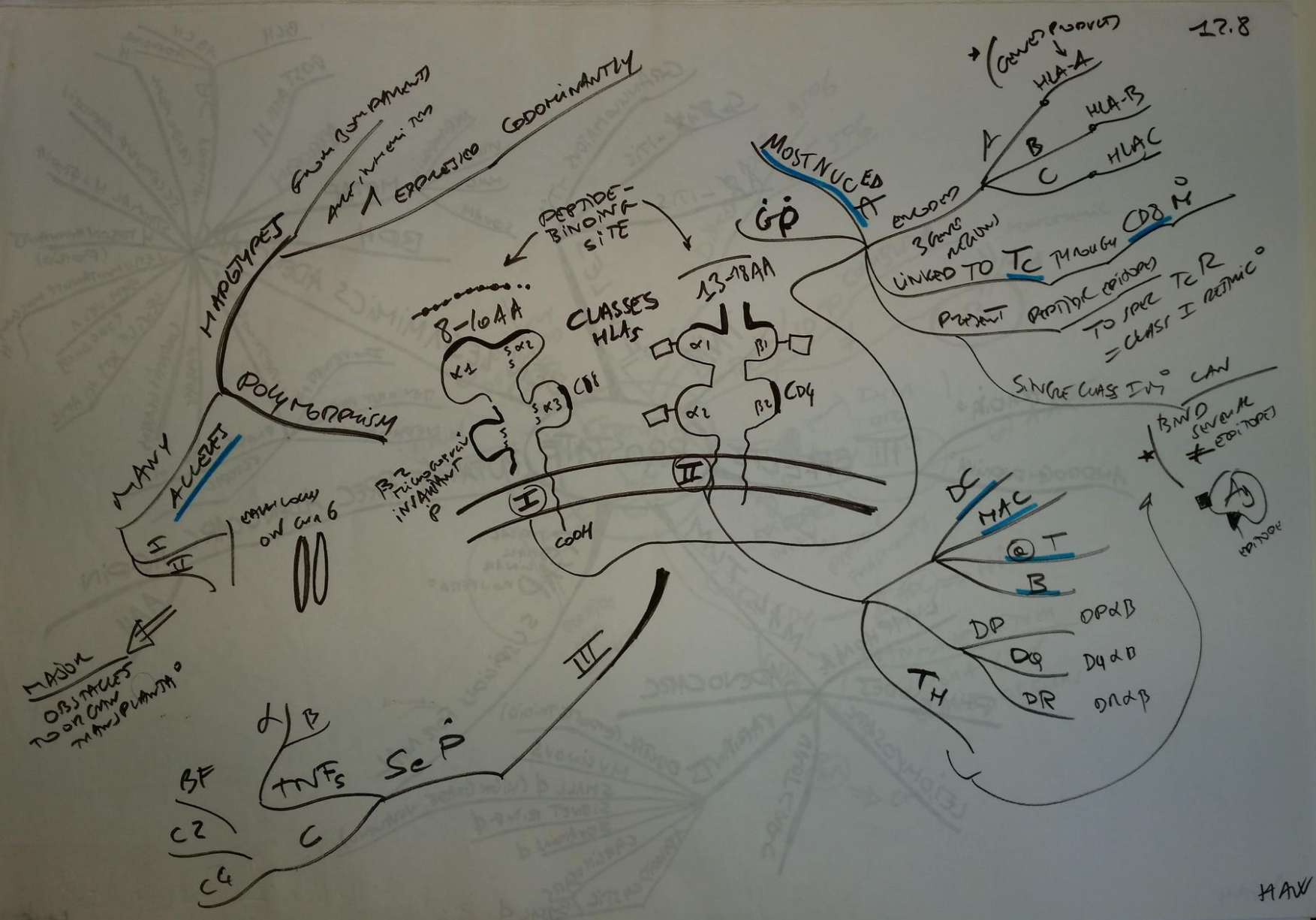
SELF-MHC RESEMBLANCE OCCURS

INDIVIDUAL SUSCEPTIBILITY TO IMMUNE DISEASES

1:FC

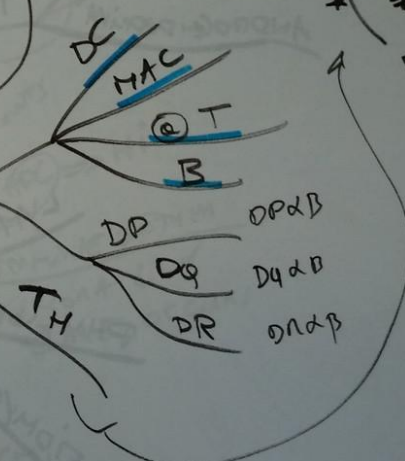
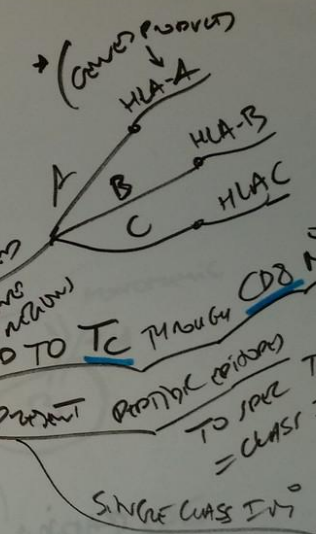
- ANK SPOND
- DMH HOND
- RAIDM'S JD
- INS DM OIBS
- PSOR VILG
- COOPP
- RA
- SLE
- PANCREAS

HLA	nrk
DQ6	87
B27	56
DQ3	40
B27	33
DQ3/DQ4	13
C6	13
DQ2	10
DQ4/DQ4	5
DQ3	5
DQ5	5

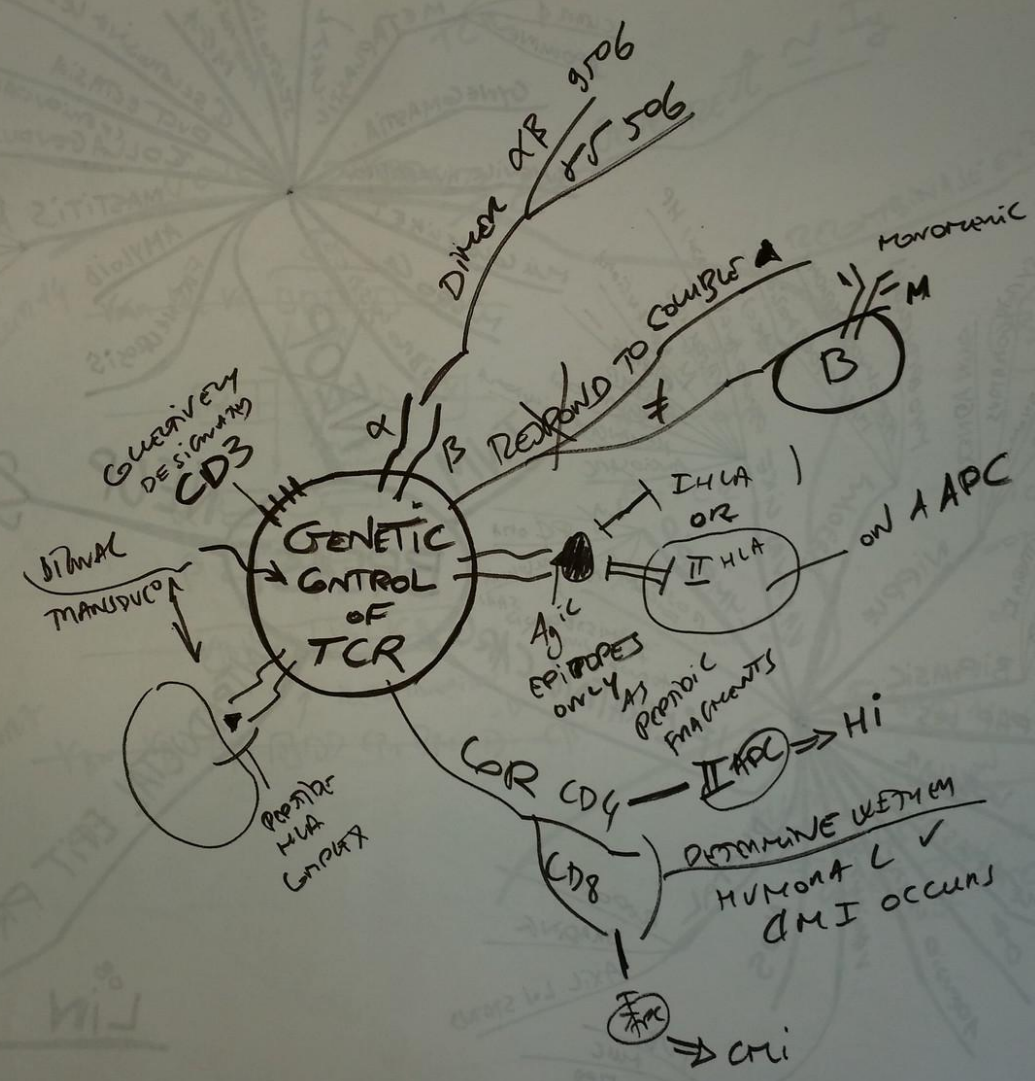


17.8

MAJOR OBSTACLES TO ORG. CHANG. MANIPULATION



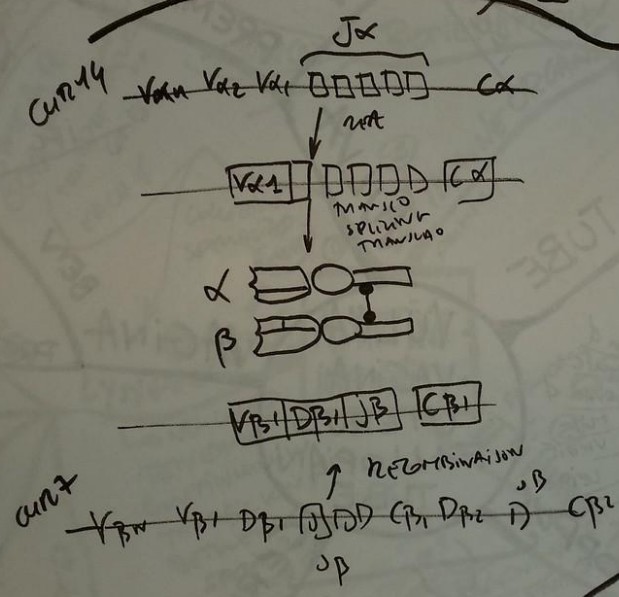
HAW



TCR

GENE REPT $\approx I_H$

GENETIC DIVERSITY



Genome wide DNA
 non DNA
 $\dot{P} = TCR$
 non DNA
 Genome wide DNA

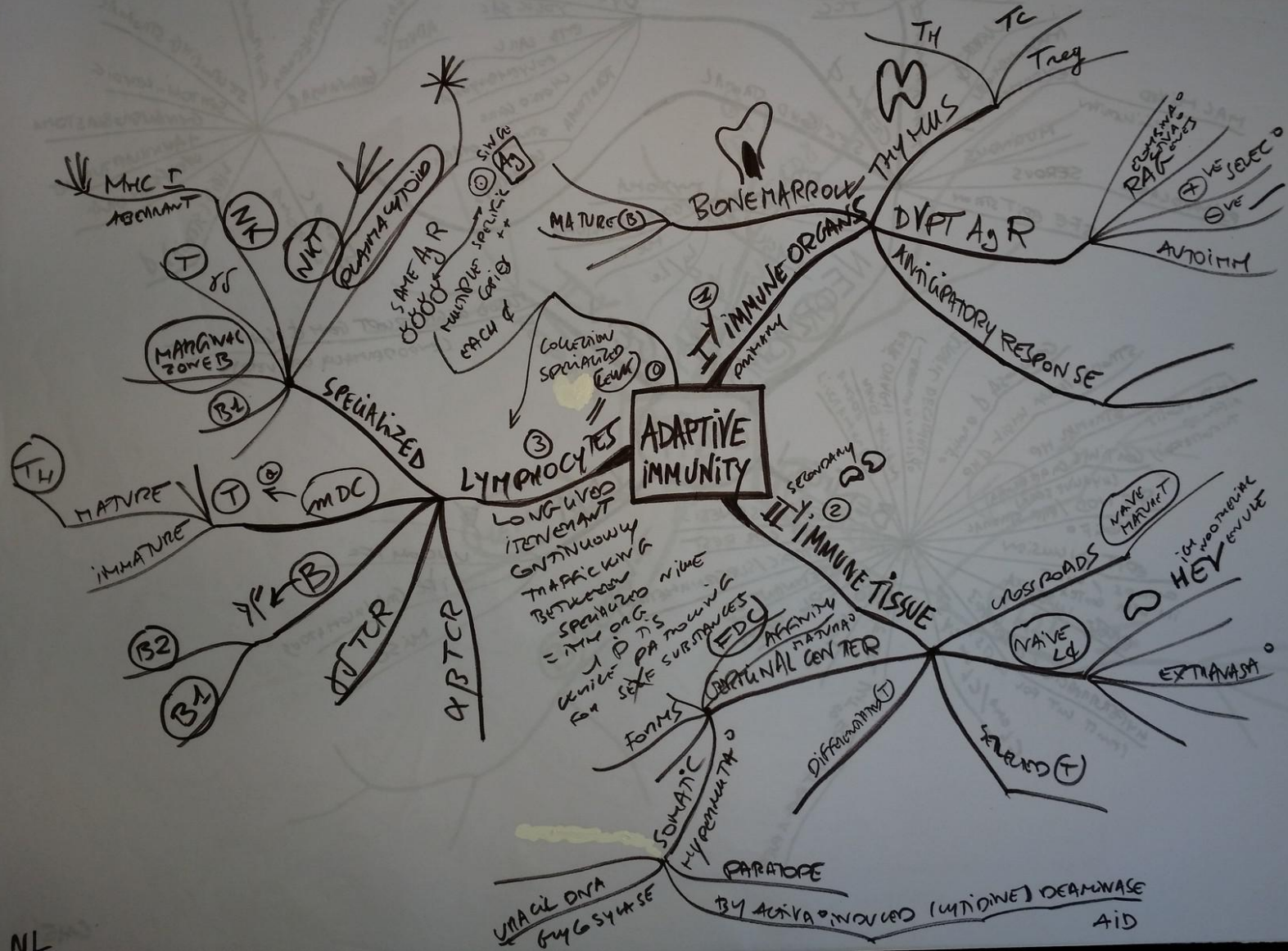
RECOMBINATION EV2
 RAG1
 RAG2

HIL

(B) (+)
 Any RECOMBINATION
 ERRORS
 which MODULATE
 SOMATIC
 RECOMBINATION
 OF V J D genes

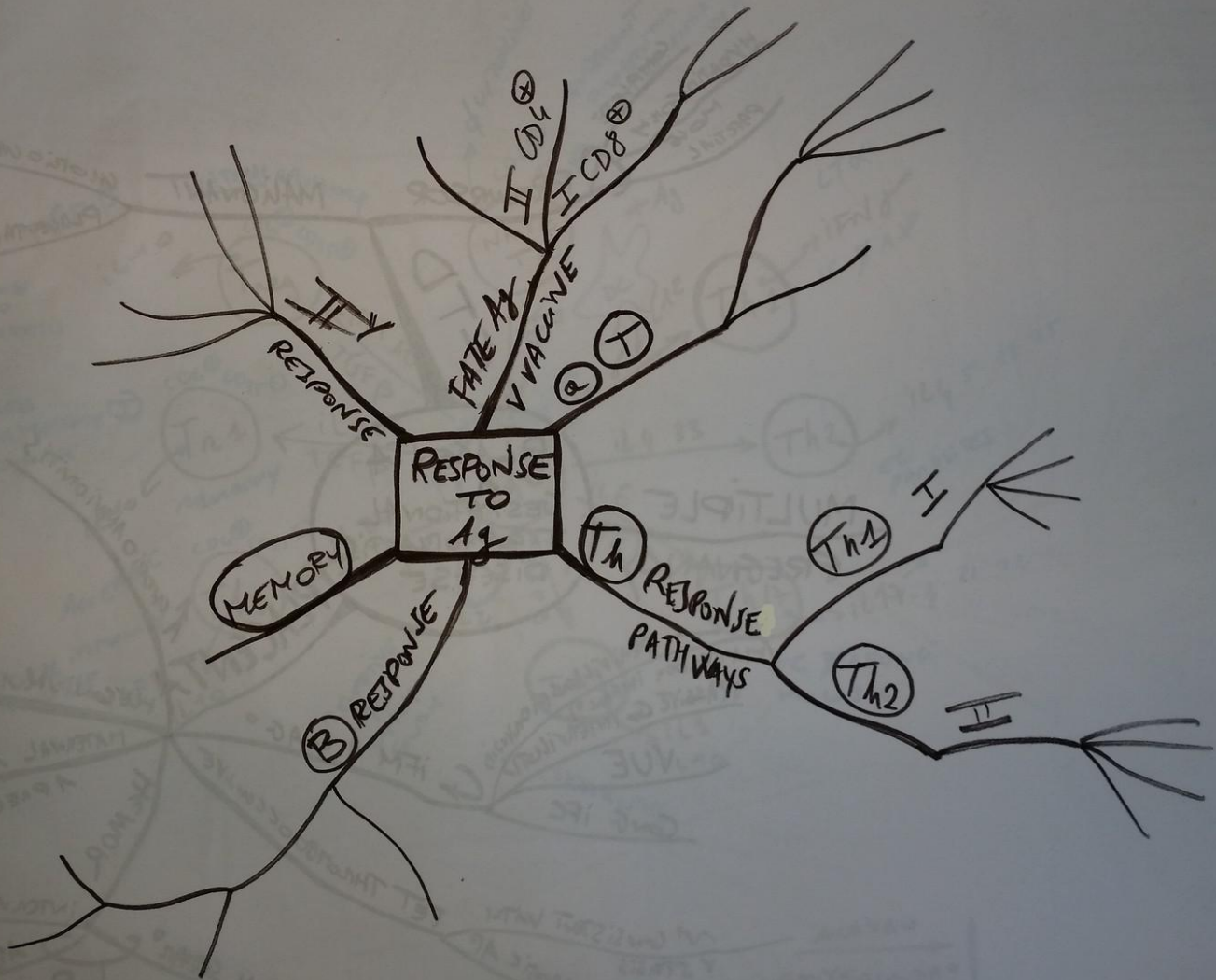
PHENOMENON

ALLELIC EXCLUSION
 Controls
 Gene EXPN
 of TCRs



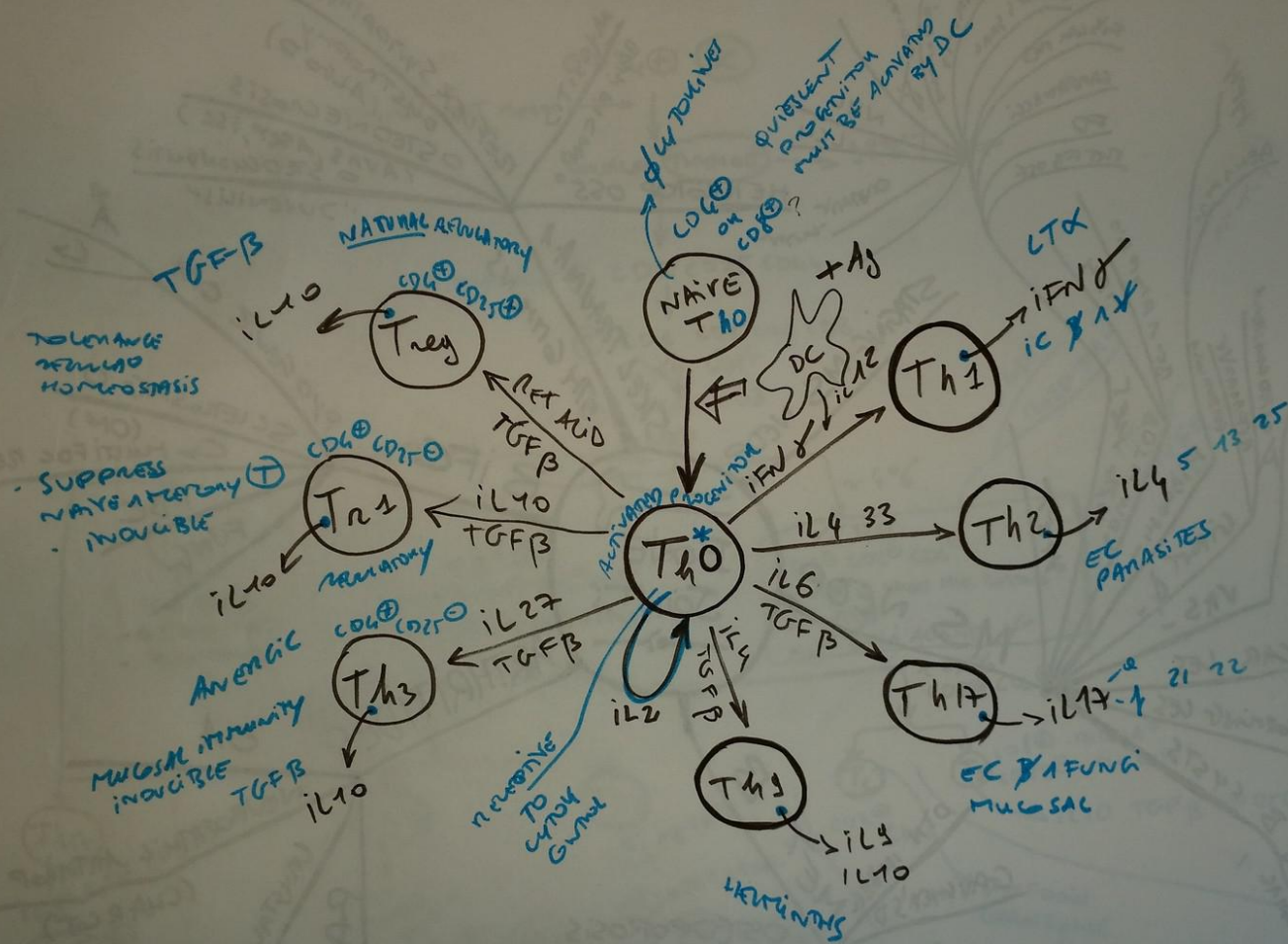
HAY

12.4
12.10



NL

12.4



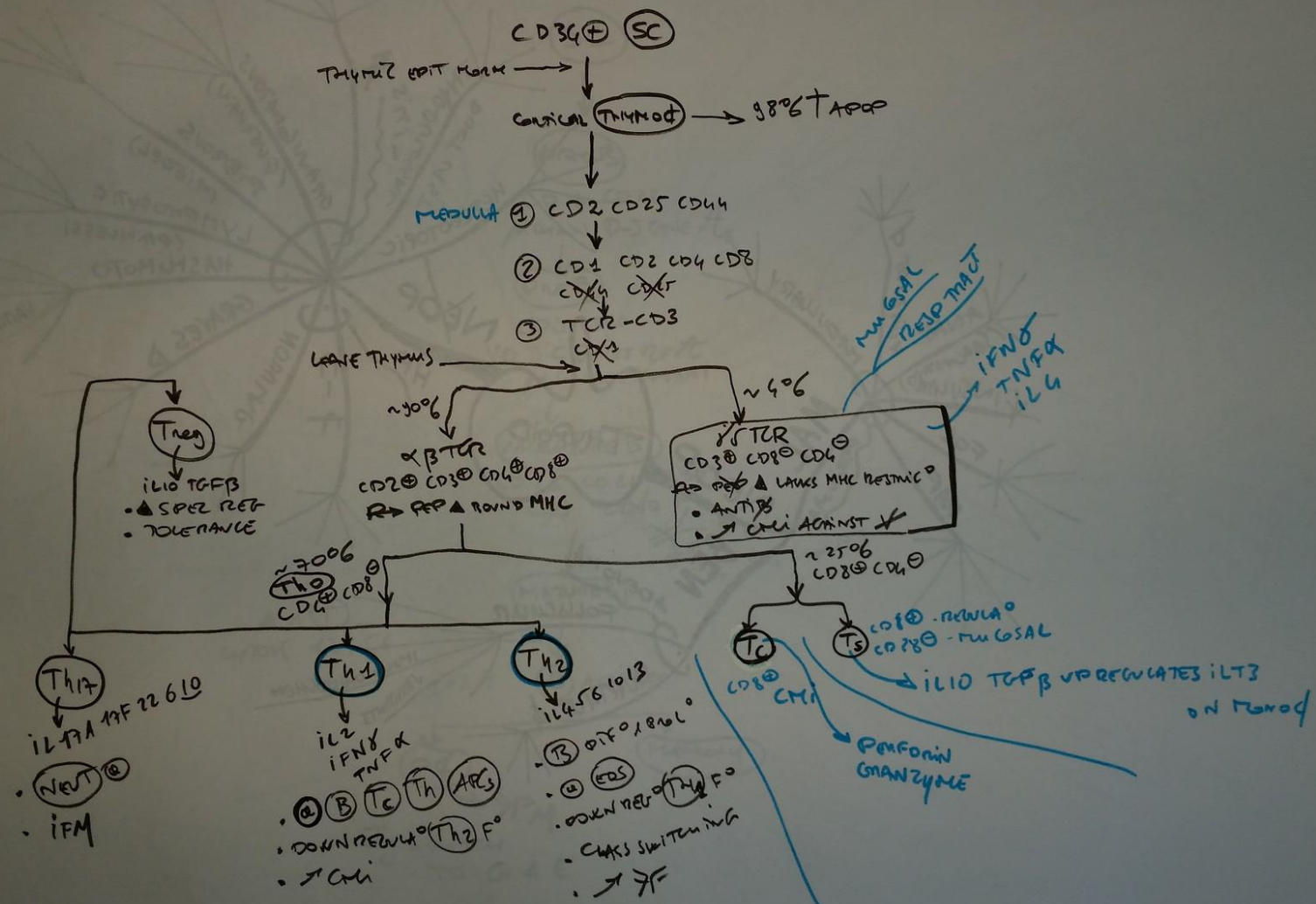
ACRYA0
 101010101010

NL

MAX

(T) DVPT

12-4



② DVPT

12.9

SC

PROB

CD 13 CD 22
M CHAIN D-J GENE A_5

PREB

CD 3 CD 6
VD J-C GENES REPT
M CHAIN APPAR 1

IMMATURE B

CD 20 CD 21 CD 37
~~CD 3~~ ~~CD 6~~ M R

DIFFERENT
B CELL CLONES

MATURE B

▲ 1 ⊕
CYTOK IL2 & 56

B ACTIVATED

PC

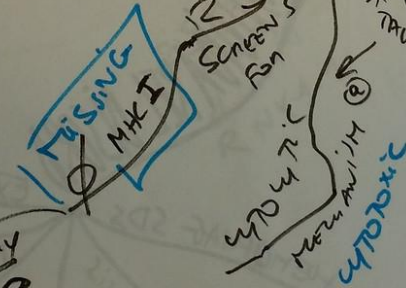
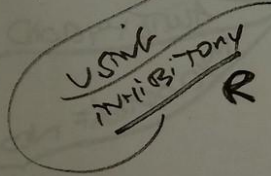
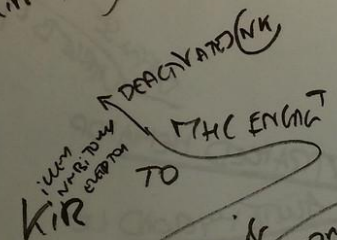
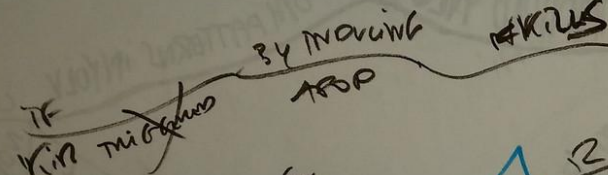
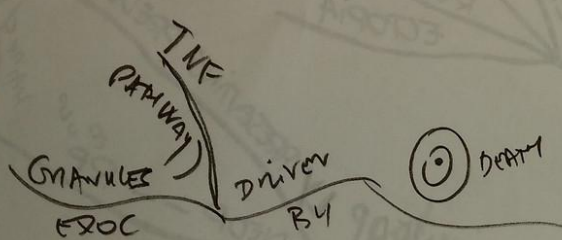
Plasma

• Ig SWITCH
TO G A E

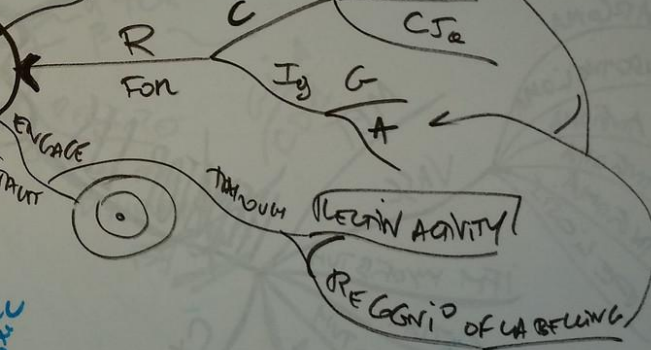
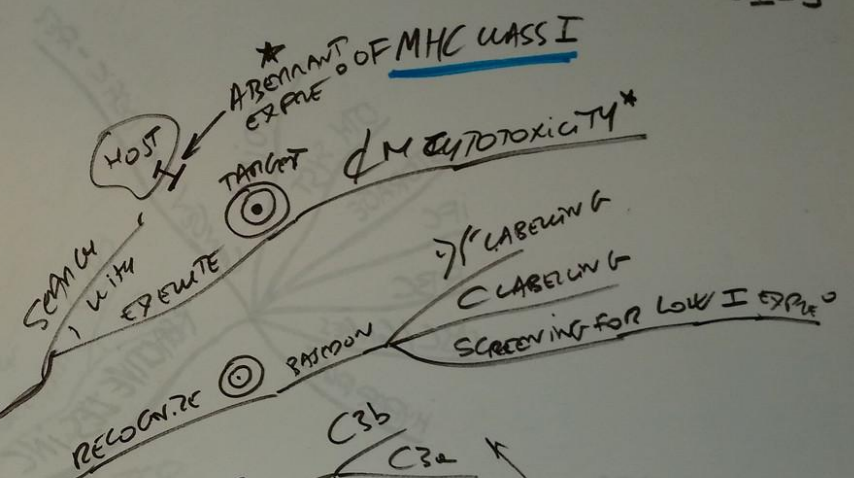
IL-6 =

→ IFN

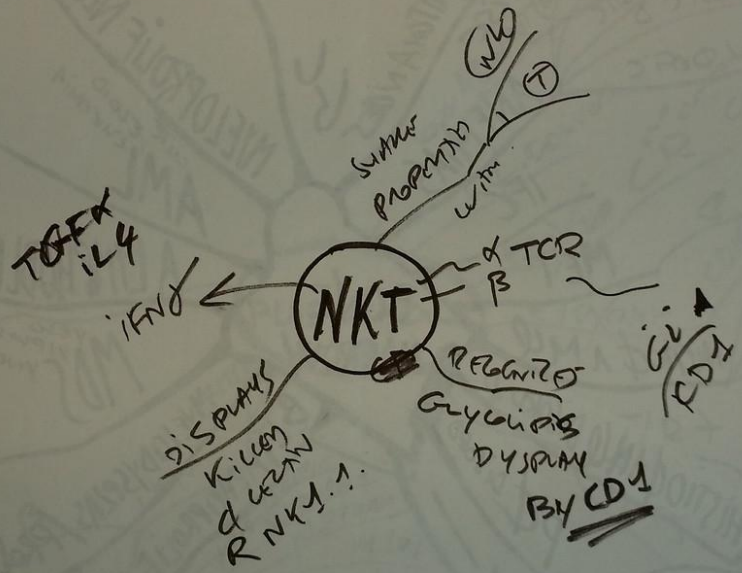
PERFORIN GRANZYME



NK

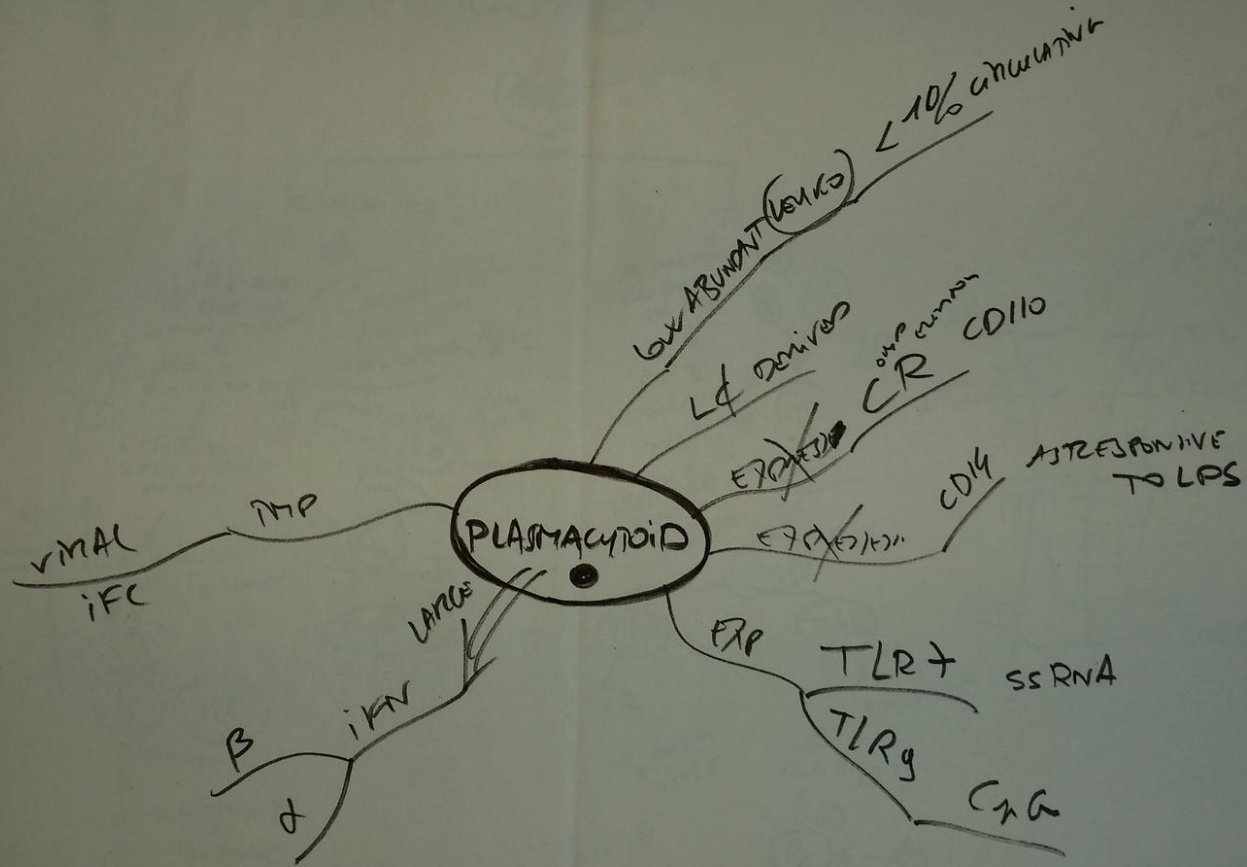


+ ANTI-VIRAL ACTIVITY

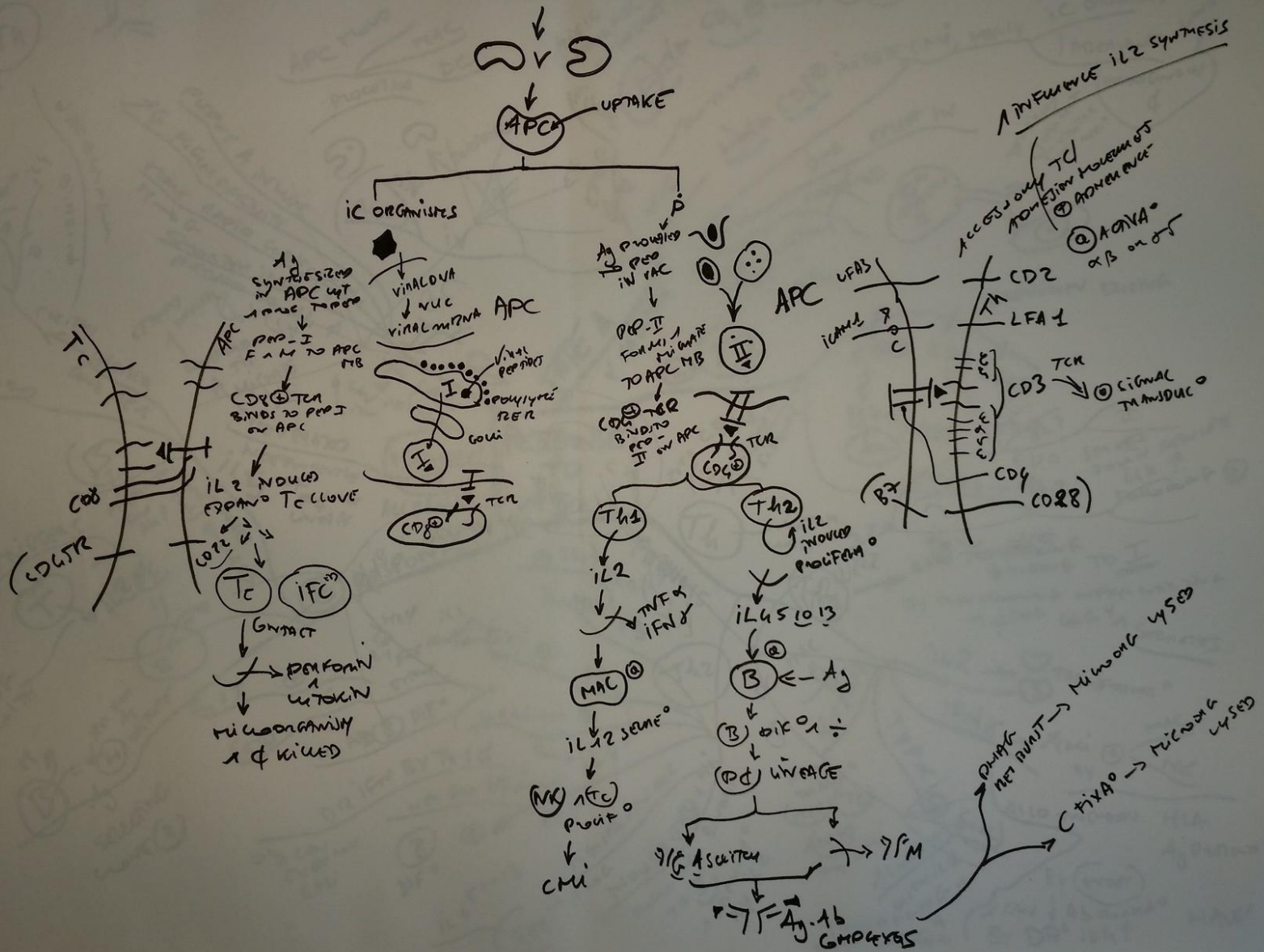


= ↑ DCs?

12.9



MICROORGANISMS VACCINES



IMMUNOLOGIC ASSAYS

SPECIFICITY
AVIDITY

WESTERN-BLOT
TECHNIQUES

PROTEC°
TESTS

AGGLUTINA°
TESTS

PRECIPITA°
TESTS

INDIRECT
TEC
DIRECT
TEC

FLUORESCENT
AB

SEMI QUANTITATIVE
TEST FOR B

TITER

SLIDE

MAJOR

AGG°

CROSS MATCH

MINOR

GOLD AGGLUTININS

IMMUNO-
ELECTROPHORESIS

IMMUNO-
ELECTROPHORESIS

IMMUNO-
ELECTROPHORESIS

MANNAN-BINDING
ALTERNATE
MAC CLASSICAL
PATHWAYS

REACT°
EUSA

SPEC AB

AS

SPECIFIC

TOTAL RIA

RAST

RIA

SIMILAR
MUNO
KOID

QUANTITATIVE

IMMUNO-
ELECTROPHORESIS

IMMUNO-
ELECTROPHORESIS

IMMUNO-
ELECTROPHORESIS

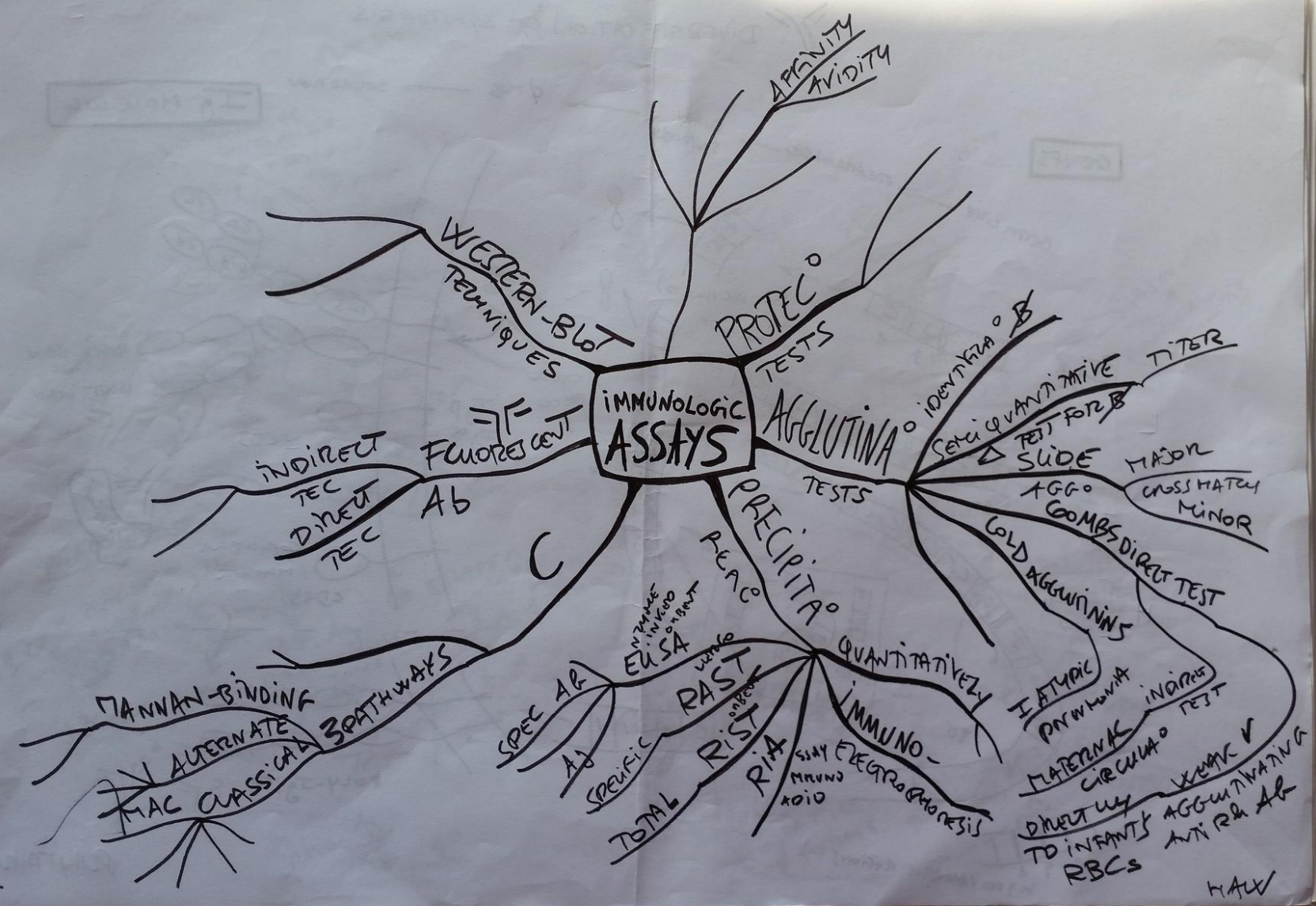
INDIRECT
TEST

IMMUNO-
ELECTROPHORESIS

IMMUNO-
ELECTROPHORESIS

IMMUNO-
ELECTROPHORESIS

IMMUNOLOGIC ASSAYS



NL

HAW

12.11

IMM ASSAYS GEN

SPECIFICITY

STRUCTURAL COMPOSITION
AA VS CARBS
EPI TOPE
DOUBLE BONDS
POSITIONS

PERFORMANCE
CUT OFF RANGE
♀
VITRO
VIVO

VASCULITIS
+
IMMUNE
RESPONSE

RANGE
NANOGRAM
PICOGRAM

MEASURE BINDING
E
UNIVALENT
EPI TOPE

TOTAL BINDING E
UNIVALENT Ag

AVIDITY
AFFINITY

MONOCLONAL BM
BINDING

UNION
SENSITIVE +
SPECIFIC
FIRM
BUT
REVERSIBLE
SHORT RANGE

PHAGOCYTOSIS

SIZE OF PARTICLES
BY RATIO
VIVO LAB
AP-EXCESS ZONE

AP-AG
EXCESS ZONE

ESCAPES A LODGE IN BV VESSELS
EXCESS AB BINDING
EXCESS ZONE

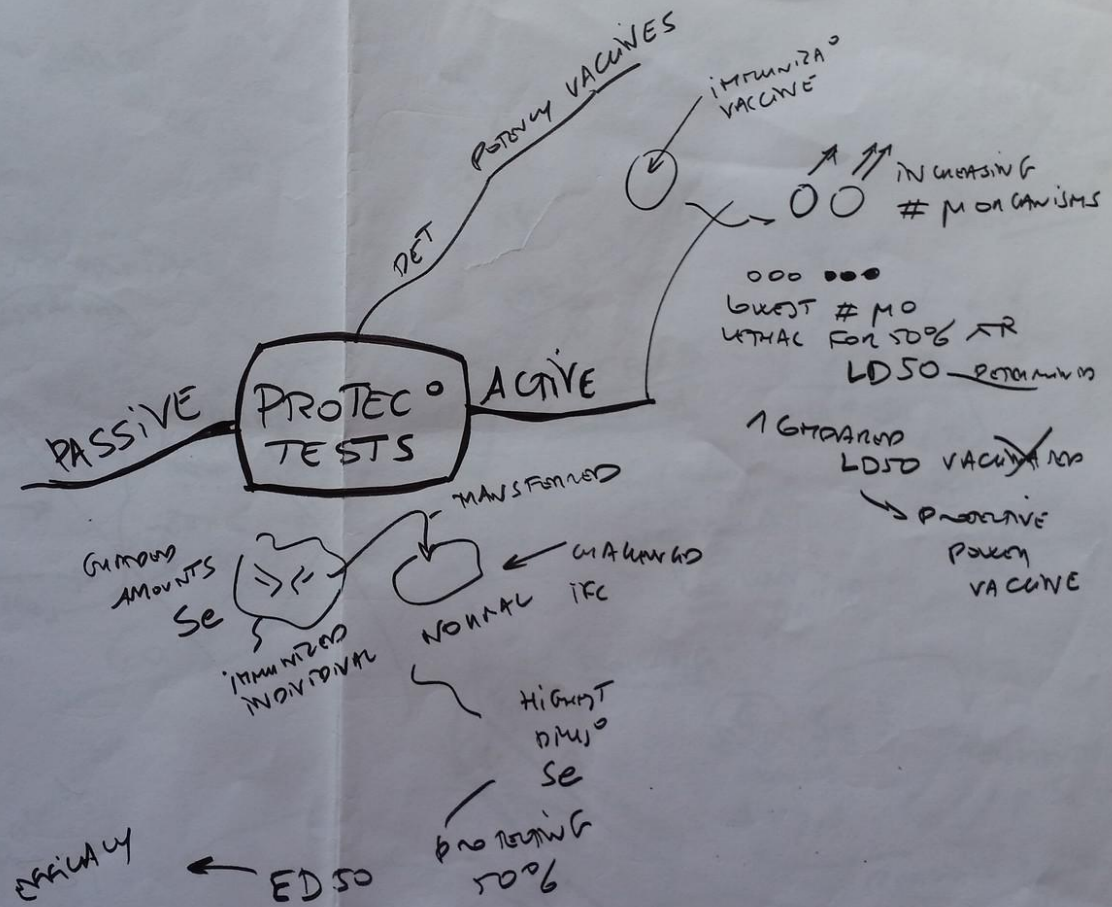
BIVALENT
VITRIFABLE

RATIO
A/B

COMPOSITION

+ SLOWLY UNL
MATTICE FORMS
TURN ON
CROSS-LINKAGE

~~ISLIMESIR~~



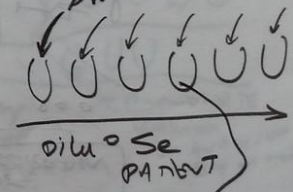
Typhoid miasmatis
 ↓
 IATMP (P) on route

some lot
 MUMPS
 INSE
 MYXOT
 NEUTRO SPONT
 AMBO AGG RBC
 RBY IFERS
 Se TITR
 Lu Gu...

AGGUTINA TESTS

DETECT
 Ag
 LARGE PARTICULATE
 IDENTICAL RAPID SLIDE
 B

BATTERY 75-
 PARTIAL CULTURE
 SPECIFIC ANTI B
 ANTI SENA
 AGGUTINA



TEST FOR B
 SEMI QUANT

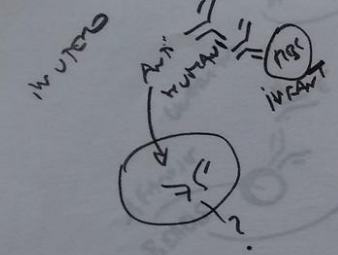
Four fold
 IN TITR
 NEZ FOR Δ
 low UNV "ON" Ag

HIGHEST VISIBLE AGGUTINA = TITER

AGGUTINA
 GOLD
 INURSA
 LOWMO
 7FC
 AGGUTINA
 0 < 37°C

AGG
 N L + RBC
 VITRO
 7FC
 MATURAC. UNL

INDIRECT
 COMBIDIRECT TEST

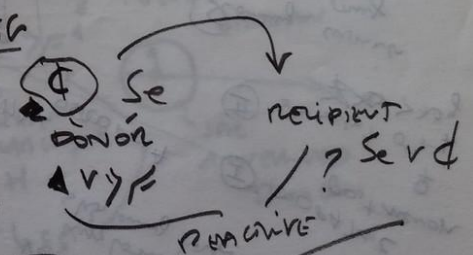


RA
 DETECO
 WORK AGGUTINA

SLIDE

Bd GROUPING

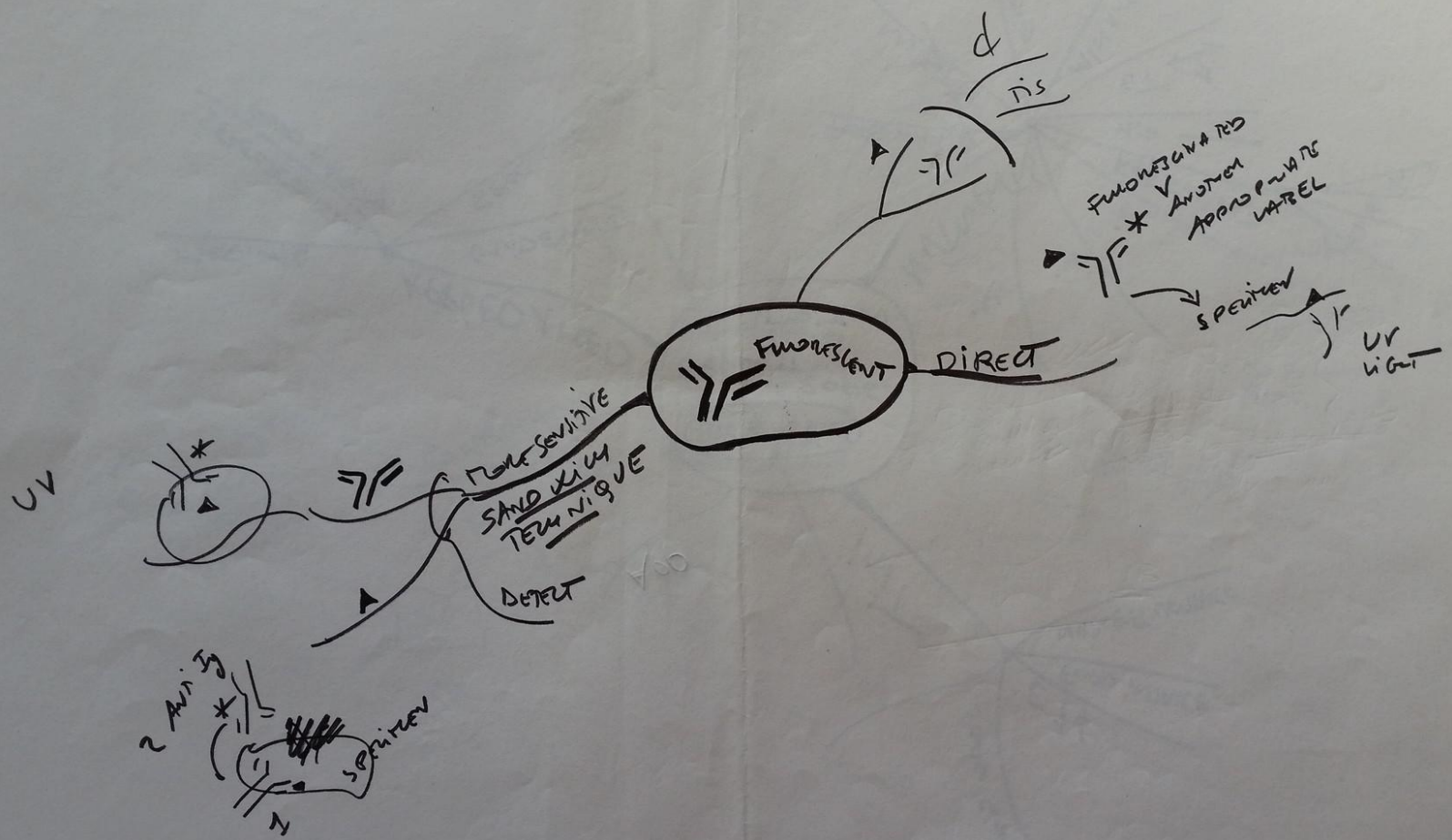
MAJOR CROSSMATCH
 MINOR



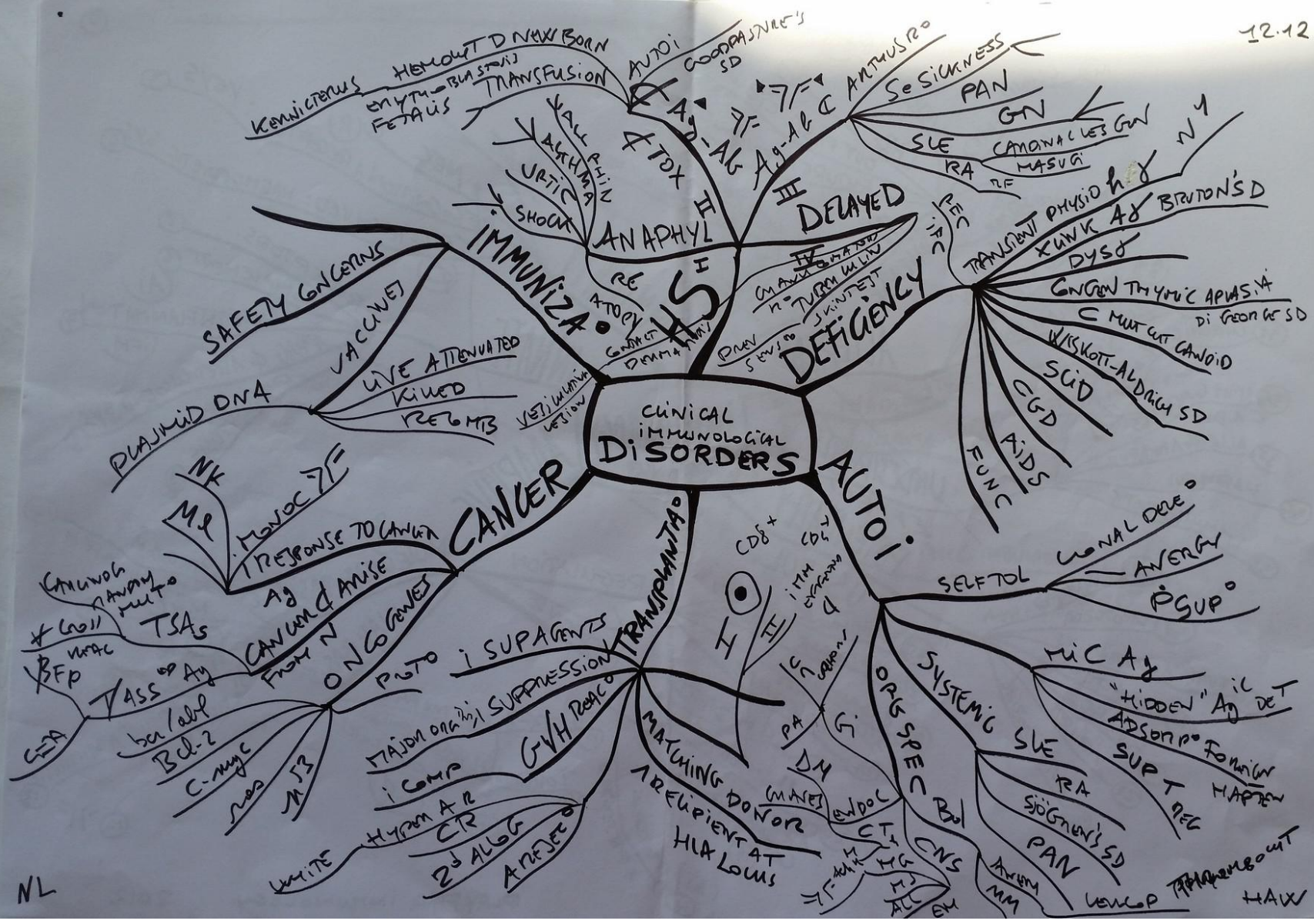
ALB MINIMAL
 MUCH LESS SEVERE THAN
 D Se
 R & AGG

MAJOR CROSSMATCH
 R Se
 N/AID ANTIAGG
 R Se
 RBC
 AG PRESENT

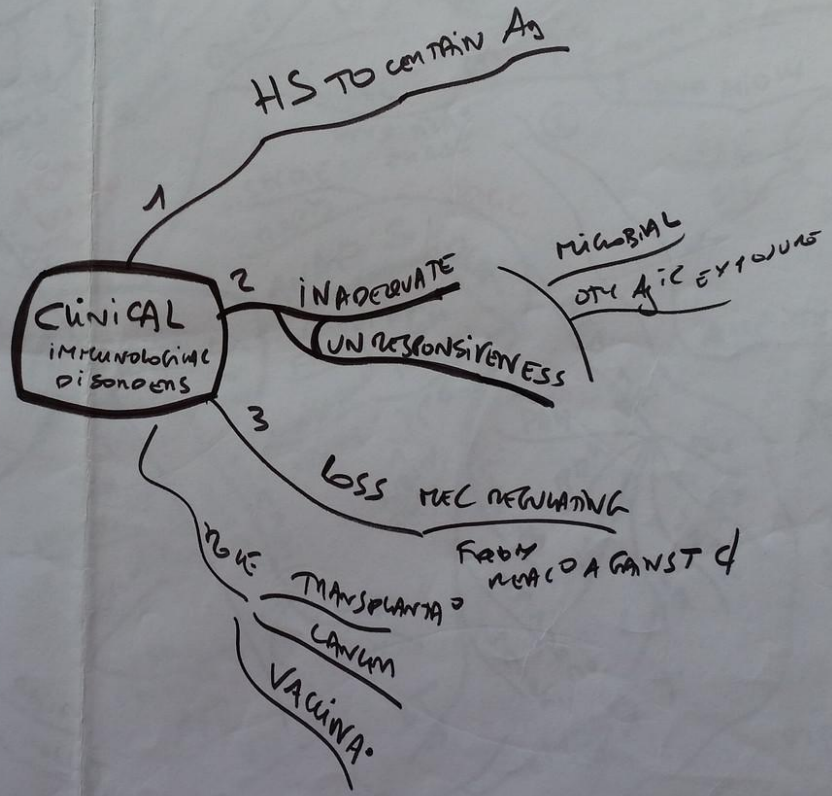
~~8002/1005/H~~



Clinical Immunological Disorders



~~Microbial virulence (cont)~~



on line

30

SMALL SIZE
 CIRCULATING + \uparrow SLIGHT EXCESS *
 ESCAPE PHAGOCYTOSIS *
 DAMAGE @ C
 DEPOSIT IN TIS
 SFE BOL VESSELS

ARTHRITIS
 IFM R
 TRAPE
 GROSS
 INTRA VAS
 PHAGOCYTES (INTERMEDIATE SIZE)
 ANAPHYLATOXINS
 CLOTTING FACTORS
 ATMACO
 +
 SERVICIDAL

Se SICKNESS
 FURTHER SE V PRODUCTS
 C DEP
 SYN
 + FEV
 PULM
 LAD
 PAINS
 RATE

PAN
 CONTIN INSULT
 A. ARTERIOLE WALLS
 HB
 INVOLVING VY
 C MOD (V) INHIBIT 10MM
 IN IMMUNO BY FLOW
 PLASMAID
 CRONIAL DILATION
 PULS
 Sulfon
 ALLEN VASculITIS

INCIDENCE RATE
 NEPHRO
 SEVERAL TOX DIS
 1 IMPROV

RA
 SLE

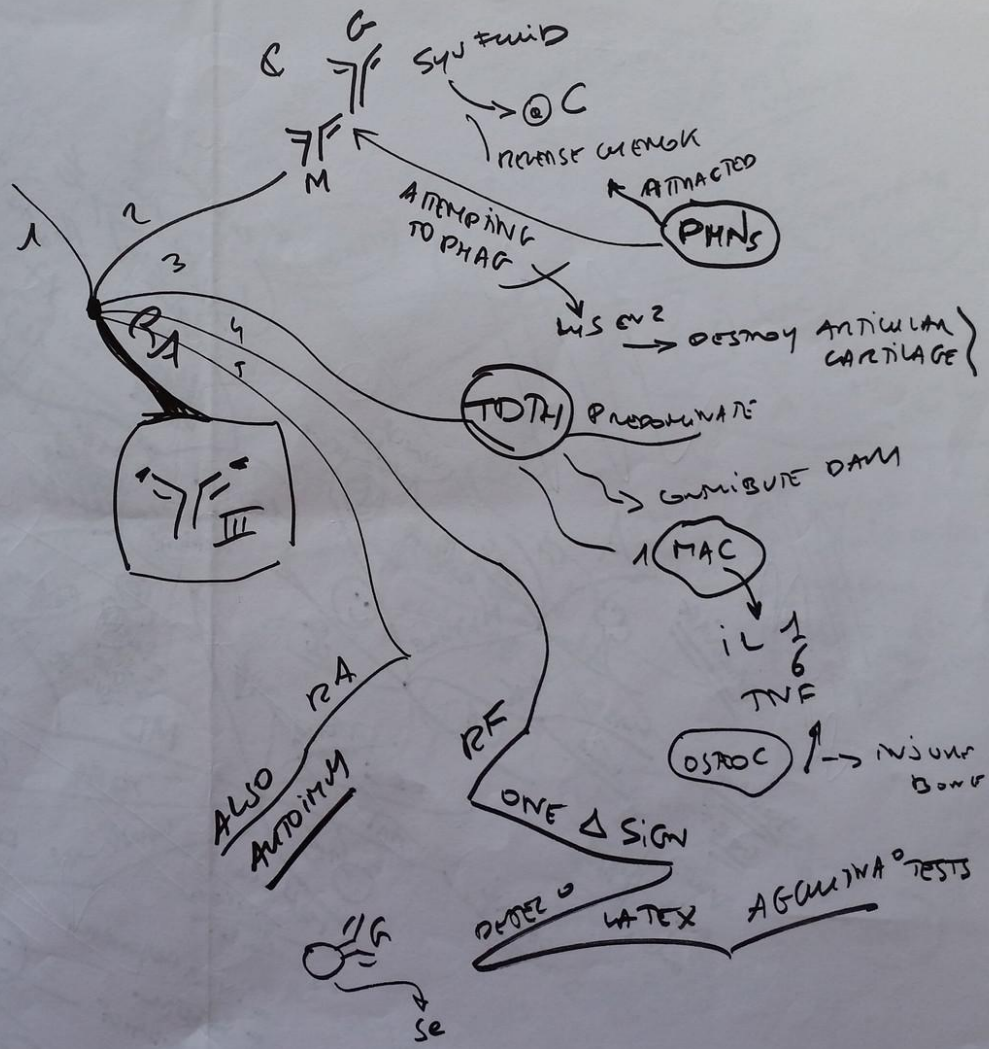
Ag-Ab C REAC^o
 III

GN
 INVOLVING VY
 CT AGENT

BY FLOW
 PLASMAID
 CRONIAL DILATION
 PULS
 Sulfon
 ALLEN VASculITIS

Group A NEPHRITIC
 STRAIGHT C
 THYROGLOBULIN
 INSULIN DNA
 MOST OF THE
 DETEC^o
 FMO
 C-3
 SOUBLE
 PMNs
 DMM
 DESTROY G
 PAIN
 LYS EVZ

RA
 SLE
 Bumpy-bumpy pattern
 FIBROSY
 IFM R
 BM
 SPIND
 ON
 AND



~~NOBOK # STAIN 1 UT D~~

epitheloid & TOTY TH1 CD8+ & HAPTENS

(LANGHANS) APCs
(CD80T)

W/TOX INTERACT (MAC) / VESICULATING + EMY THERA / WOUND

HAPT-▲ AS CAN MIM VIT N13 V S GRANULINES
DEPOSIT SMALL
TOLEC VERT GUT
ON CELL CAL S
= HAPTENS
V O TI INITIANTS

DELAYED-TYPE IV

REEXPOSURE CONTACT DERMATITIS

GRANULOMATOUS

LUNGS (OD)

TUBERCULIN SKIN TEST

epitheloid & GRANULOMA
MAC
MIPROD
epitheloid

PROMOTE
RETROV
MAC
IFNY
IL6

ATTRACT
IL18
② CD8 (TAC)

DESIGNED ON GRANULINES / BOTY
SPECIALIC GRANULASE ACCUMULATED
MAYO V MAC
FOLLOWED BY
ATTRACT
PMN

REACTO N & PERSIST
GRANULOS STIM
HOT
REMOTIV

APC (T)
CUTAN
WOUND

LANGHANS
PRESIN M

TOTY
PREVIOUSLY
SENSITIZED

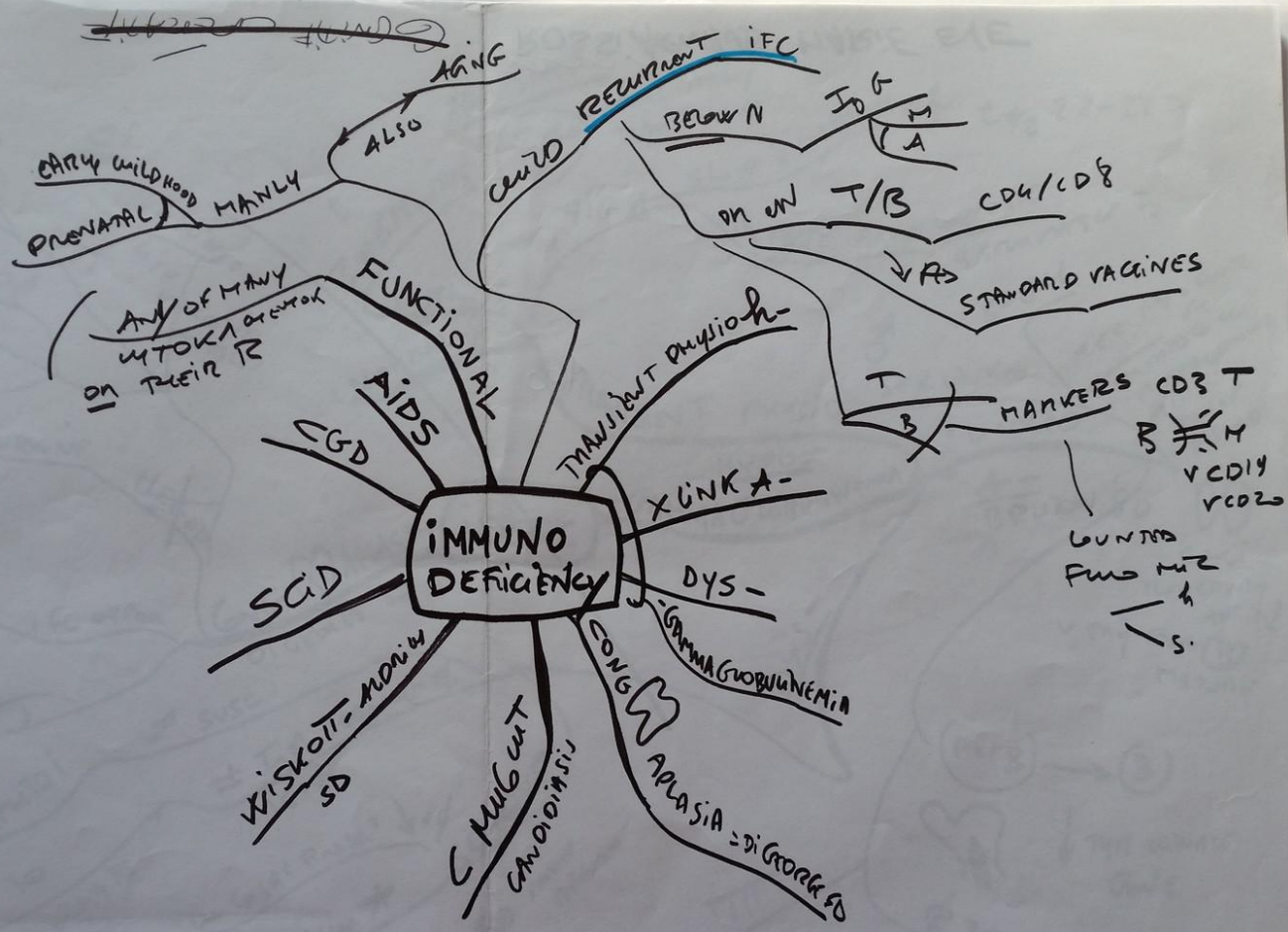
REACTO BY
METALINES

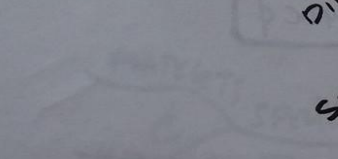
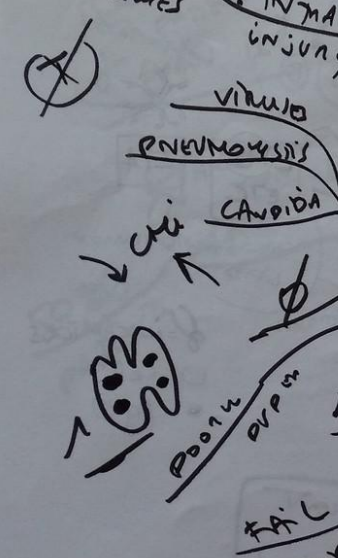
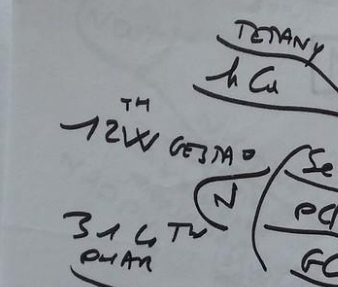
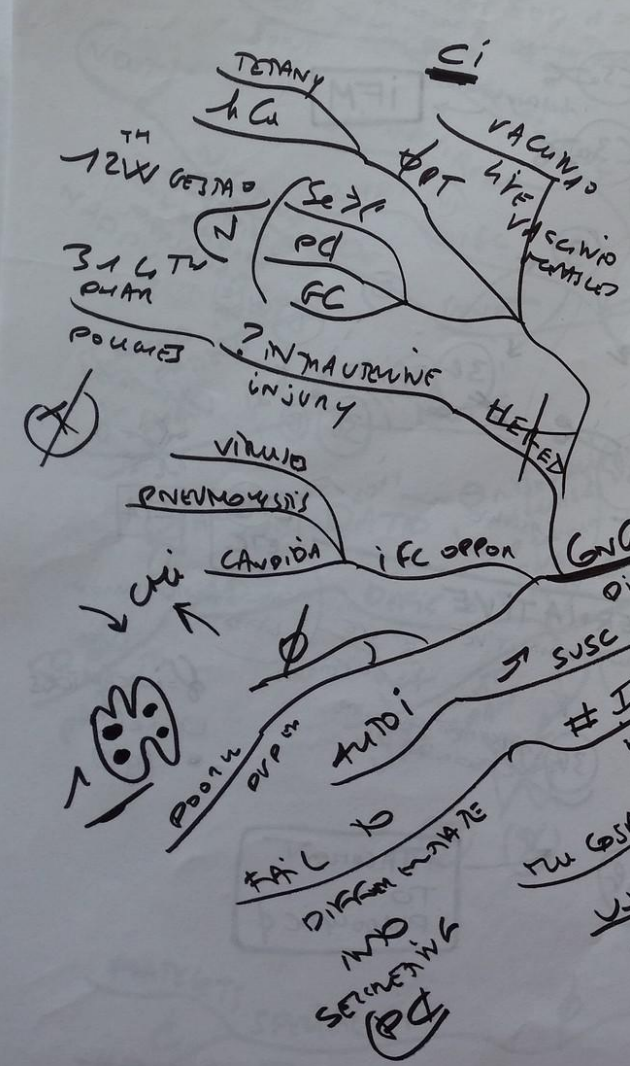
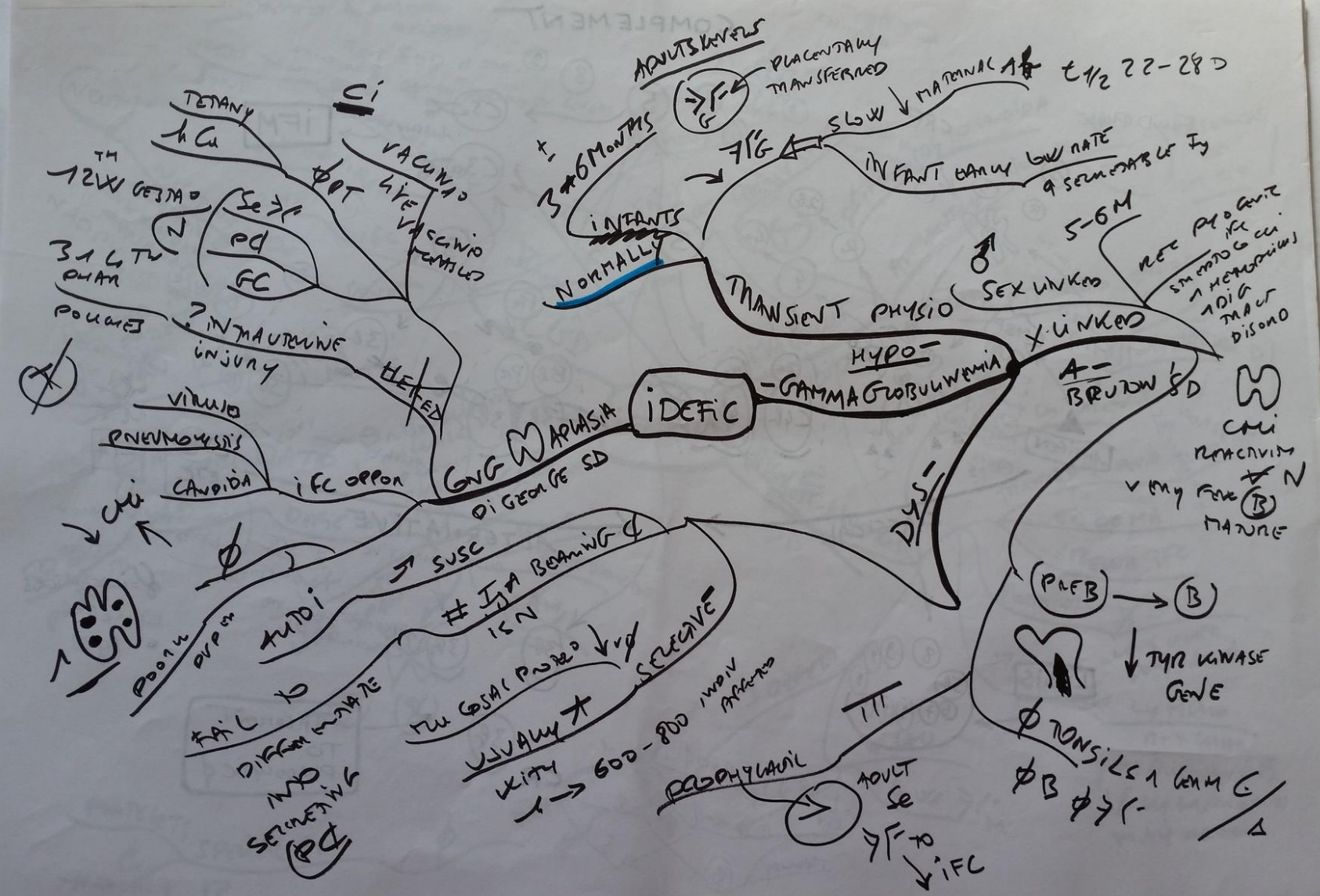
ON ONSET CONTACT WITH
NOT INVOLVED

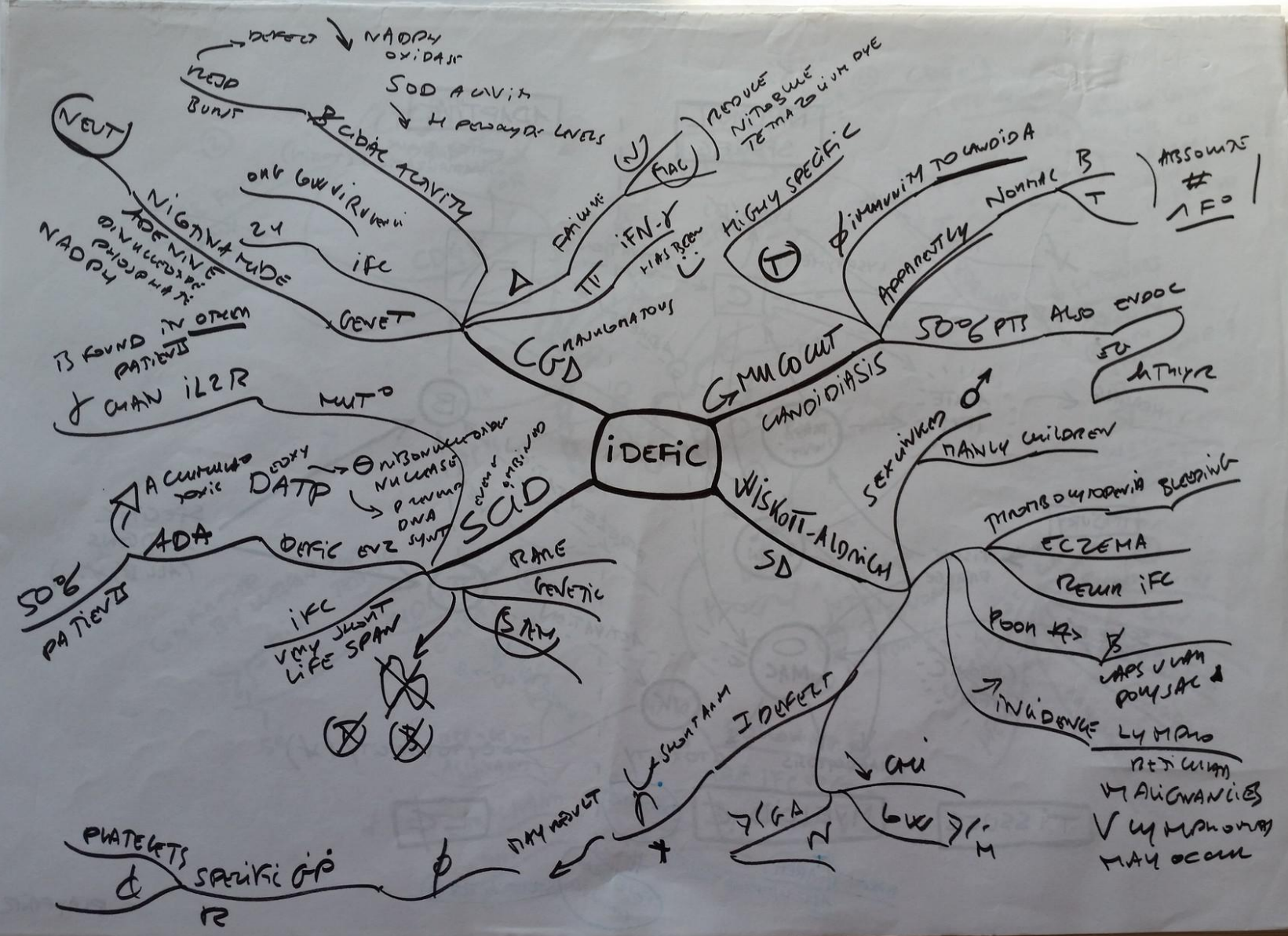
BASIC LESION
IFM RES
INVOLVED BY
MAC
TO IC-DWELLING
MONG
A SMALL MOLE
ON CM
INITIANTS

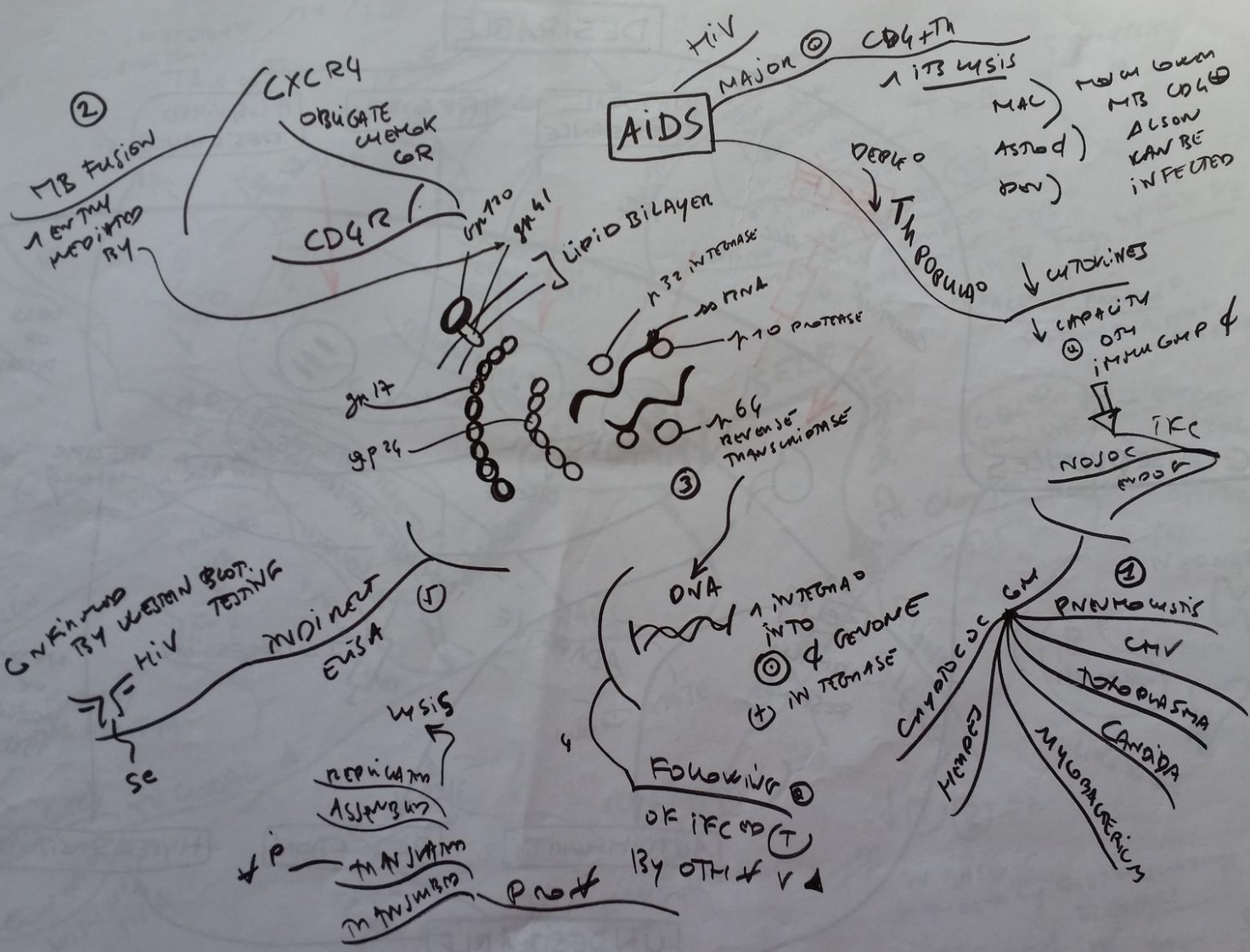
EXPOSURE
IFC MY GBA GRANULUM
TUBERCULOSIS
INMA GRAN
EXTRACT
PPD
DERIVATIVE

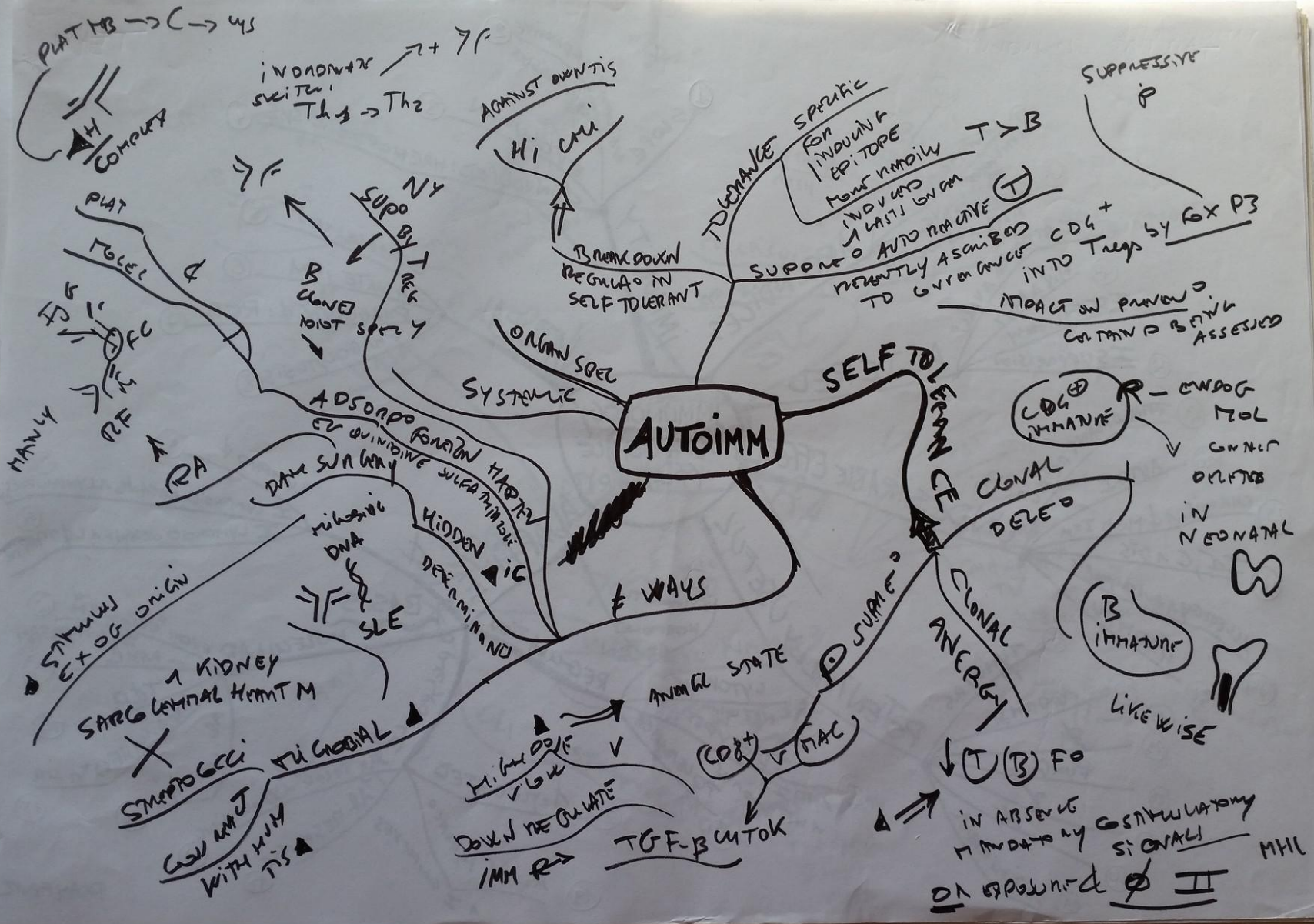
GRANULAS
W/ INJUNA
+ EMY THERA
T SEV











IN VET CAUS
30-60% PATIENTS

HB
→ HB

SITUM
↑↑

OPCM → →

LAJES
V(2)

VASCULOPET

PAN

erythematous
RASH

fulcrisy
episodic

→ VASCUITIS
ARTHRITIS
NEPHRITIS

→ DERM & GASTRITIS

SLE

SYSTEMIC
AUTOI

SJOGREN'S SD

SAIV
→ DUCT

RA

→ SYST
IFM

PANNU
CHAVULA
TIS

SUBCUT NODULE

SLE MAY II
RA

LYMPHOCYTIC INFILTRATION

→ IN SAL

CLI POSTMENOP

OR

DM NEBS MOUTH

NOSE
VAGINA
SKIN

TRACHEA,
BLADDER,
EYES

→ → → → →

→ ⊕ (→ LESION)

TELESON WITH H. A. (S) + 2:15 ONE STUDENT

ORGAN SPECIFIC

Bd

- INFLAMA
- COLON
- RECTUM
- IFM
- UC
- CRON'S D
- GI
- INFLAMMATION
- SVS (MAC)
- TERMINAL ILLUM
- RBC
- PLAT
- PC
- STAGNANT
- MONOC LIGHT WAIN IN U

ENDOC

- DM
- HT
- GRAVES
- ADCC
- TISSUE LINING
- REPER PWB?
- ACH
- NMJ
- ADAM
- FATIGUE
- WEAKNESS CSF

CNS ALLOGIC

MS

- RELAPSING
- REMITTING
- NONPEPTIDE
- AS IMPLICATED
- IN ADJUVANT
- AR mimic
- MYASTHENIA GRAVIS
- DEMYELIN
- HYPERTHYROIDISM
- THYROMA
- DEMYELIN
- PLAQUES IN WM CNS
- SUPPRESSION
- F.F.
- TISSUE
- TO MUSCLES
- 10TH

DM

- INSULIN
- CRAMPS
- ISLET
- EVIDENCE
- ADJUVANT

HT

- HT
- HT
- HT
- HT

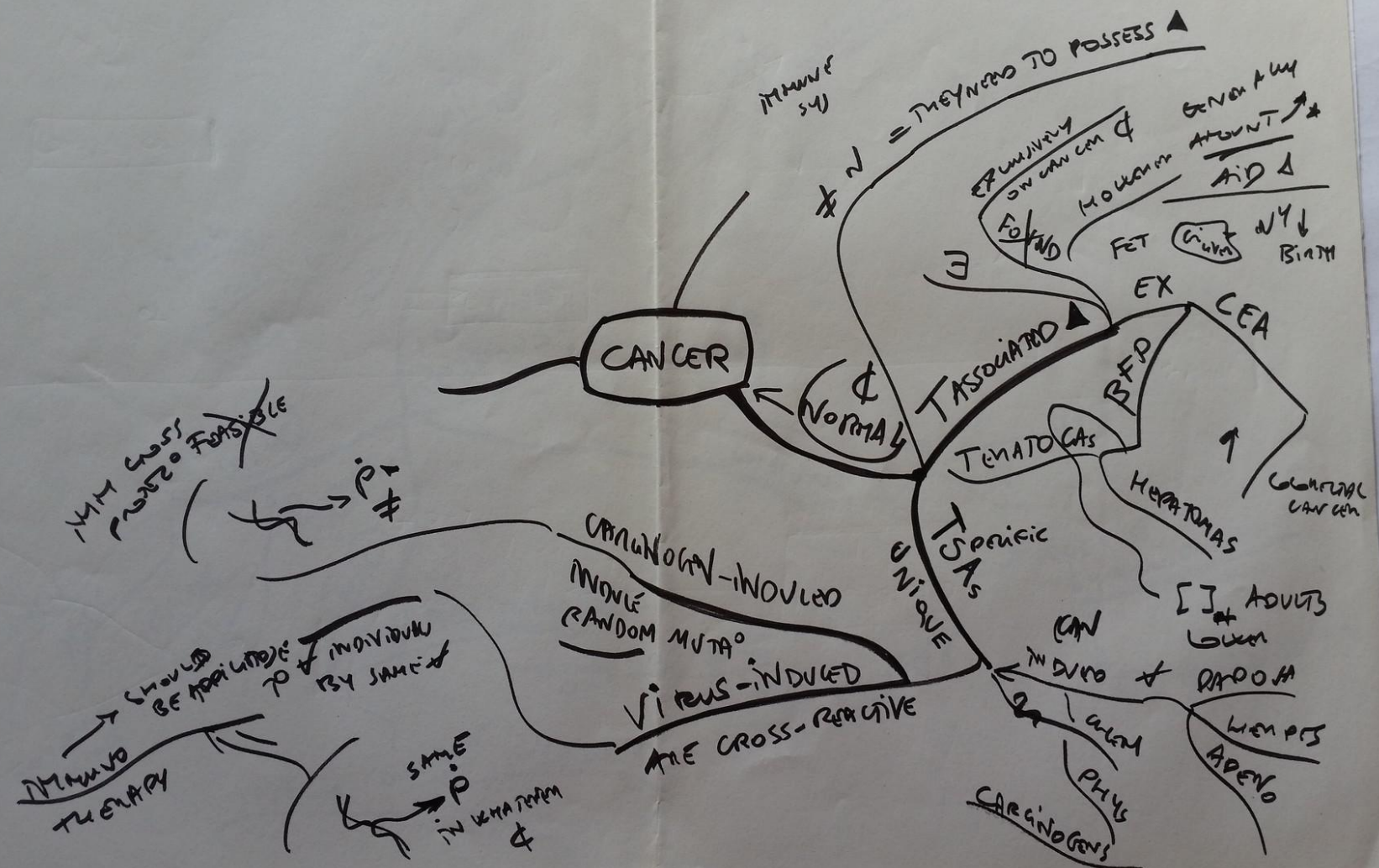
GRAVES

- HT
- HT
- HT
- HT

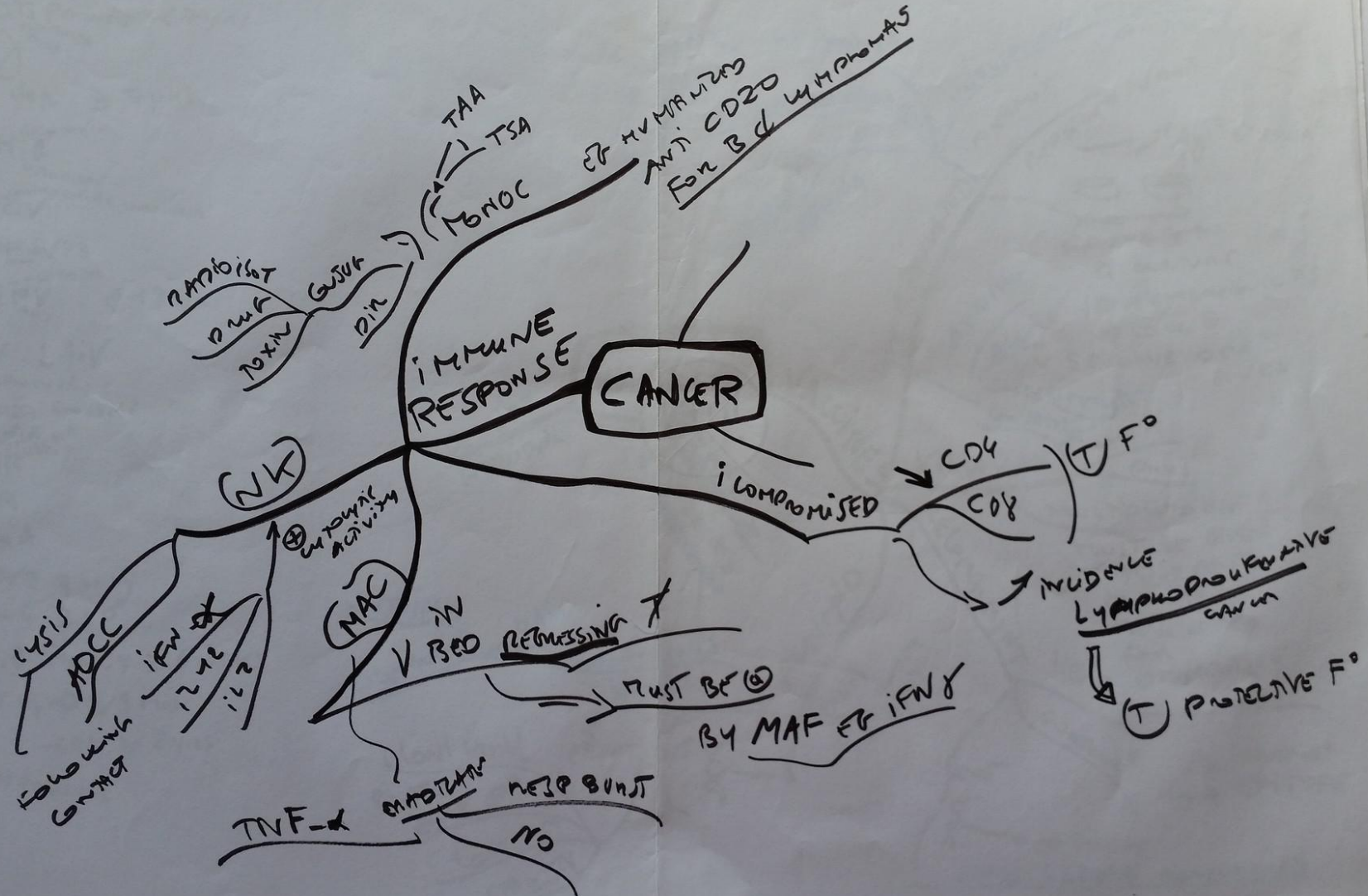
ADCC

- ADCC
- ADCC
- ADCC
- ADCC

~~NEED~~
~~FACTS TO~~



~~PHARMACOLOGY~~



INHIBITOR
DAMPEN
TOXIN
GUSIN
DIN

Lysis
ADCC
IFN-gamma
TNF-alpha
TGF-beta

TNF-alpha
IMMUNOSUPPRESSANT
RESP BUNT
NO

- Hep B
- RV 1 S
- DTaP ^{PERTENIA} _{PERUSSIS} < 7yrs
- Tdap ≥ 7yrs
- Hib ^{Haemophilus influenzae}
- PCV ^{Pneumococcal conjugate}
- PPSV23
- IPV ^{Inactivated polio} < 18yrs
- IIV LAIV ^{Influenza} 2 doses ^{for 1st time}
- MMR ^{Mumps, Measles, Rubella}
- VAR
- Hep A
- HPV2 ♀ only
- Hib - MCV4 ≥ 6 weeks
- MCV4-D ≥ 9 mos
- CRM ≥ 2yrs
- FLAVIN BOCCAL

