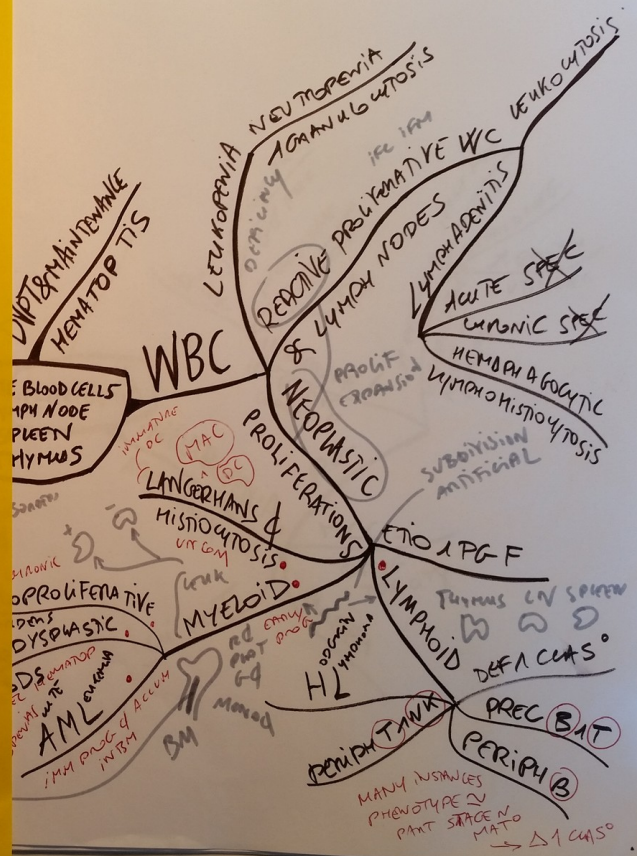


Minatruk

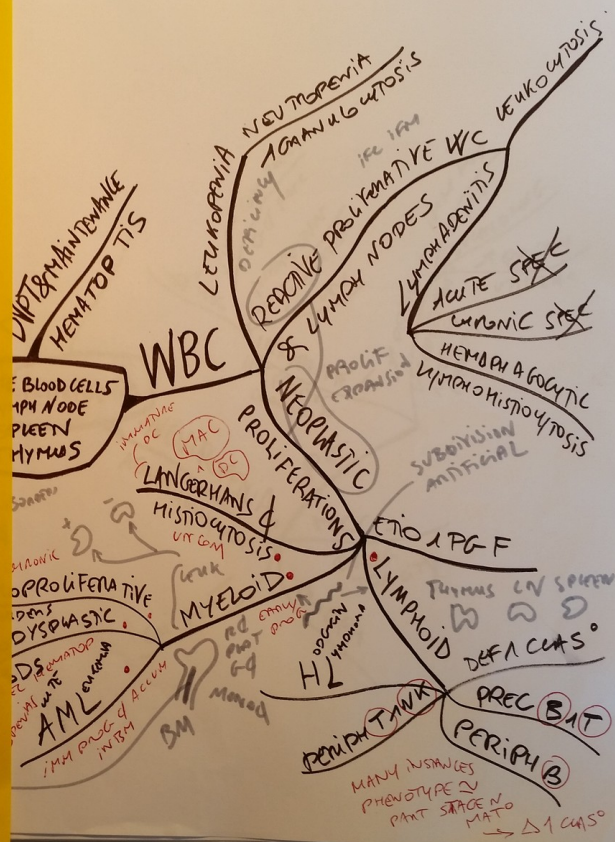


ROBBINS 2014

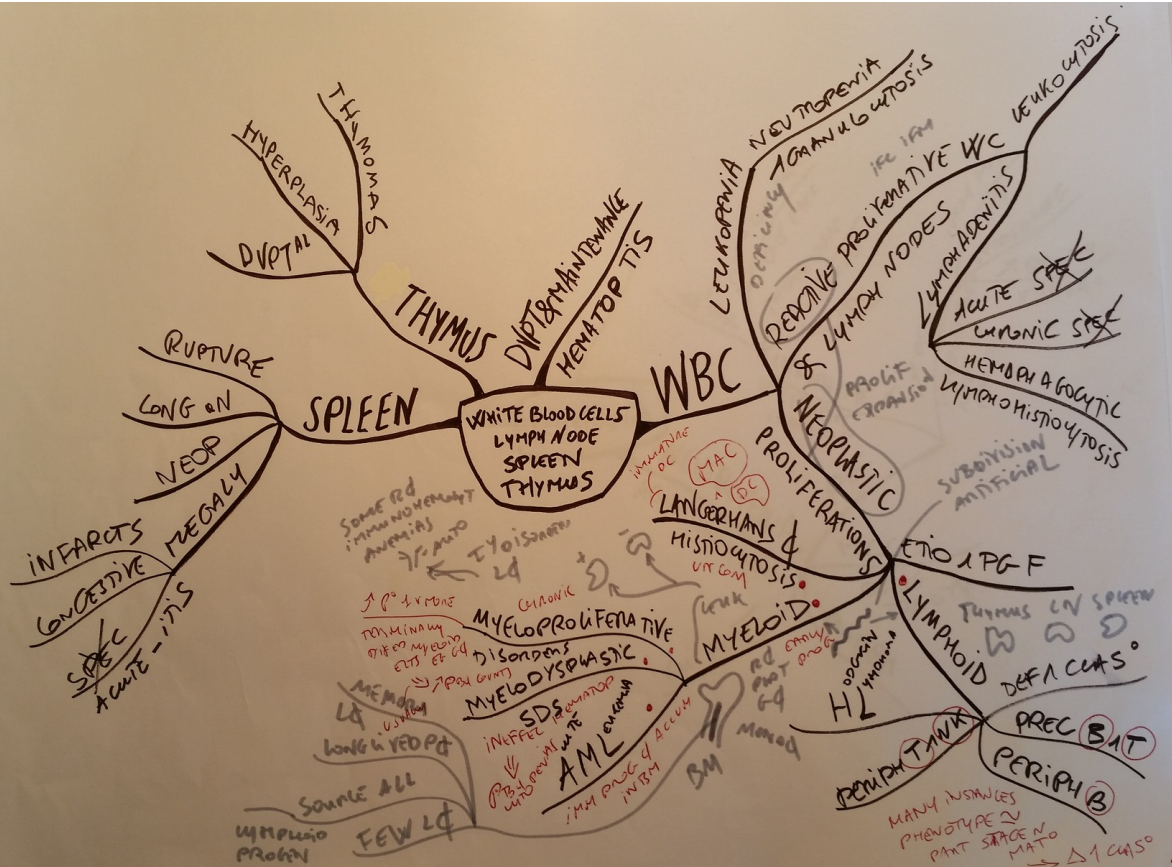
⑬ WBC, LN, SPLEEN & THYMUS

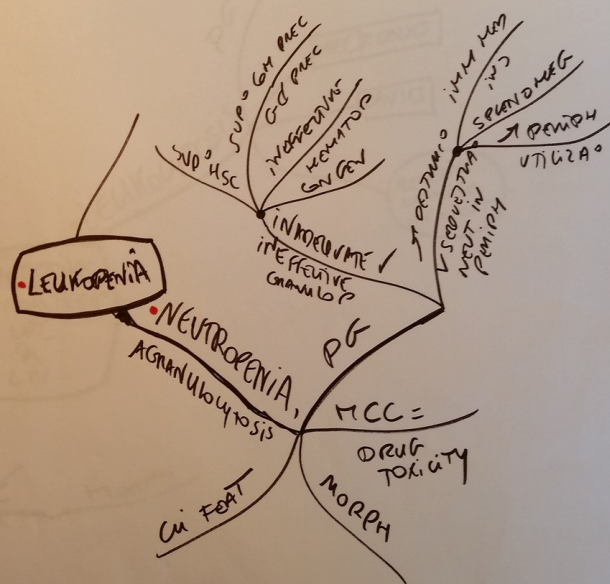
ARMADILLO

or

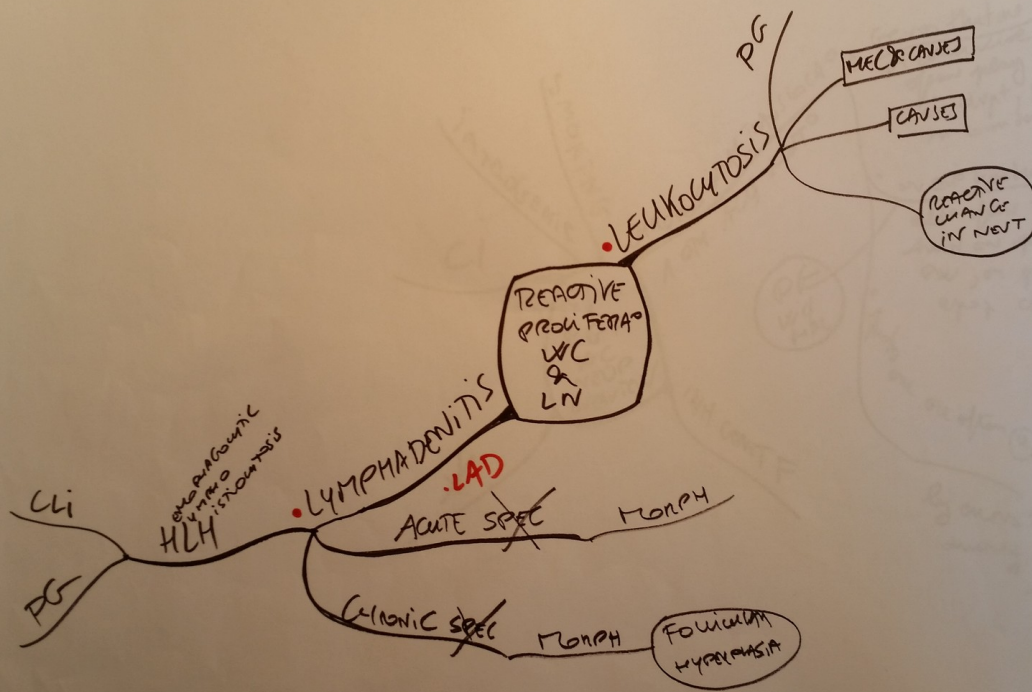


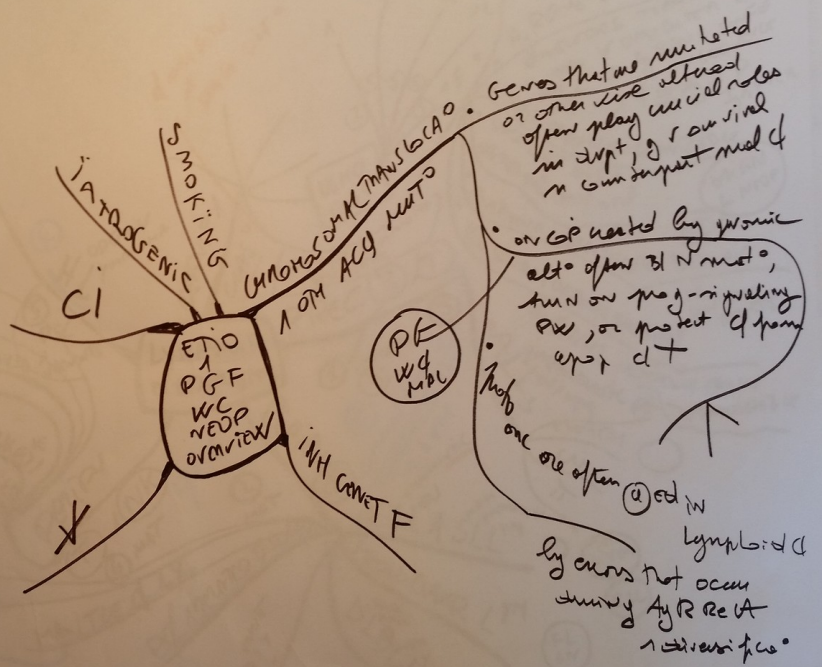




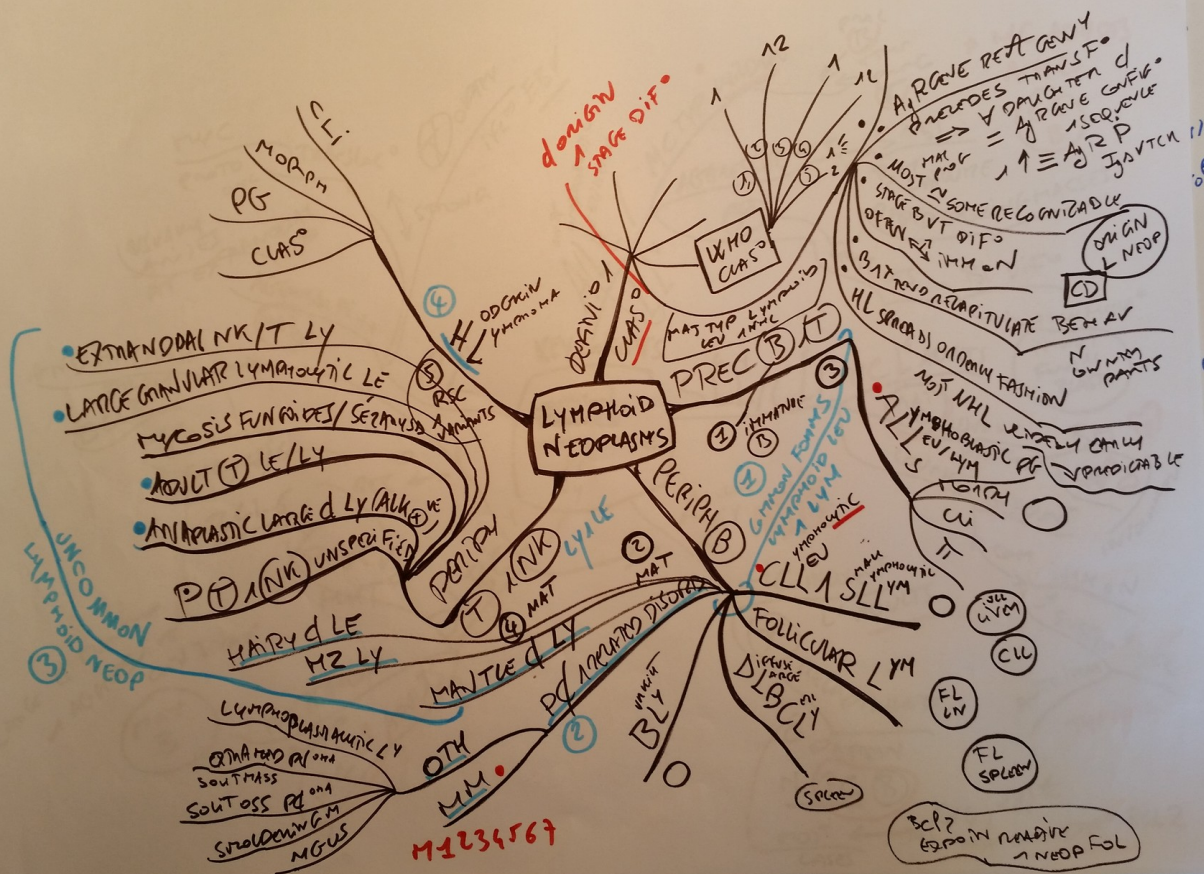


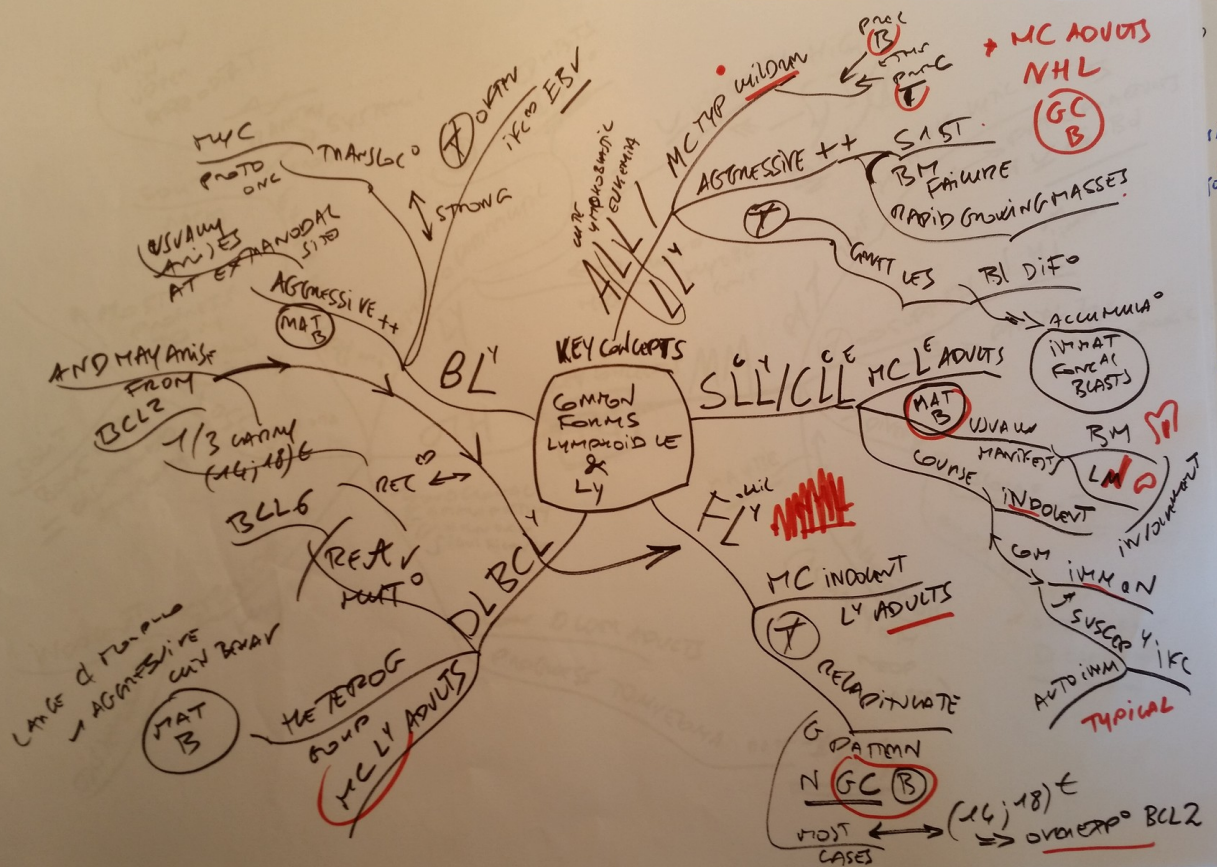




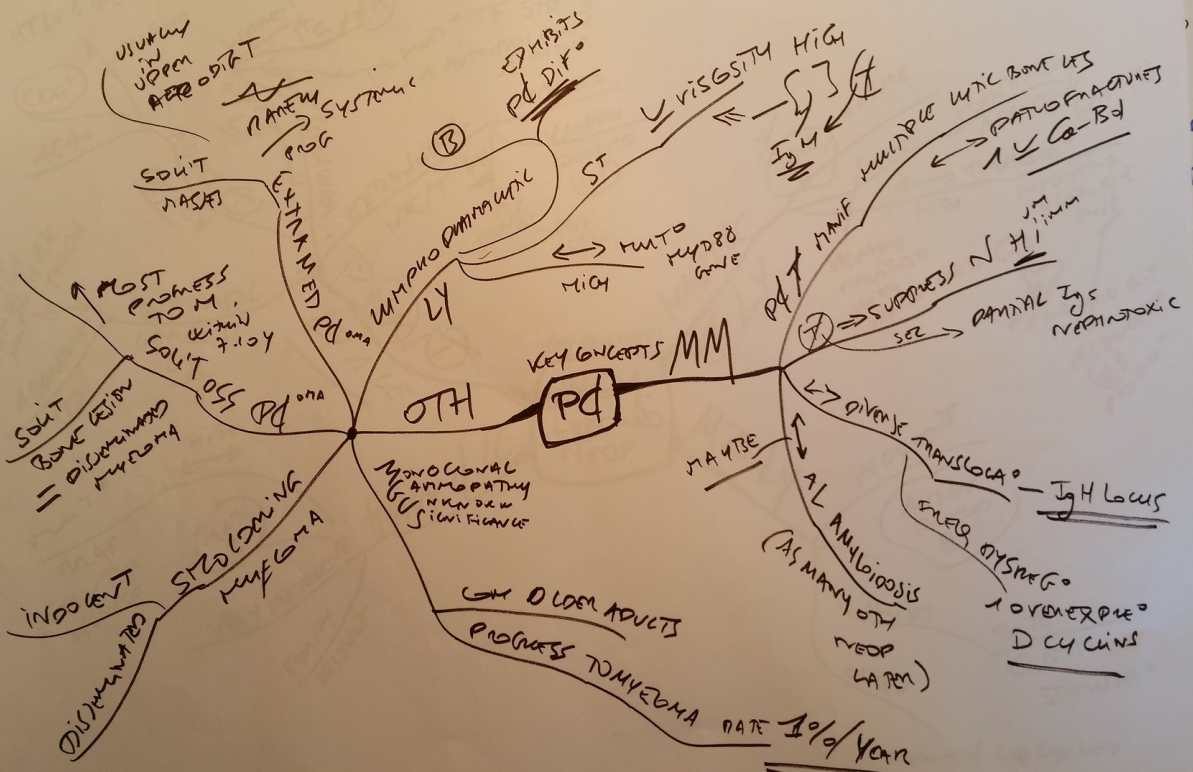




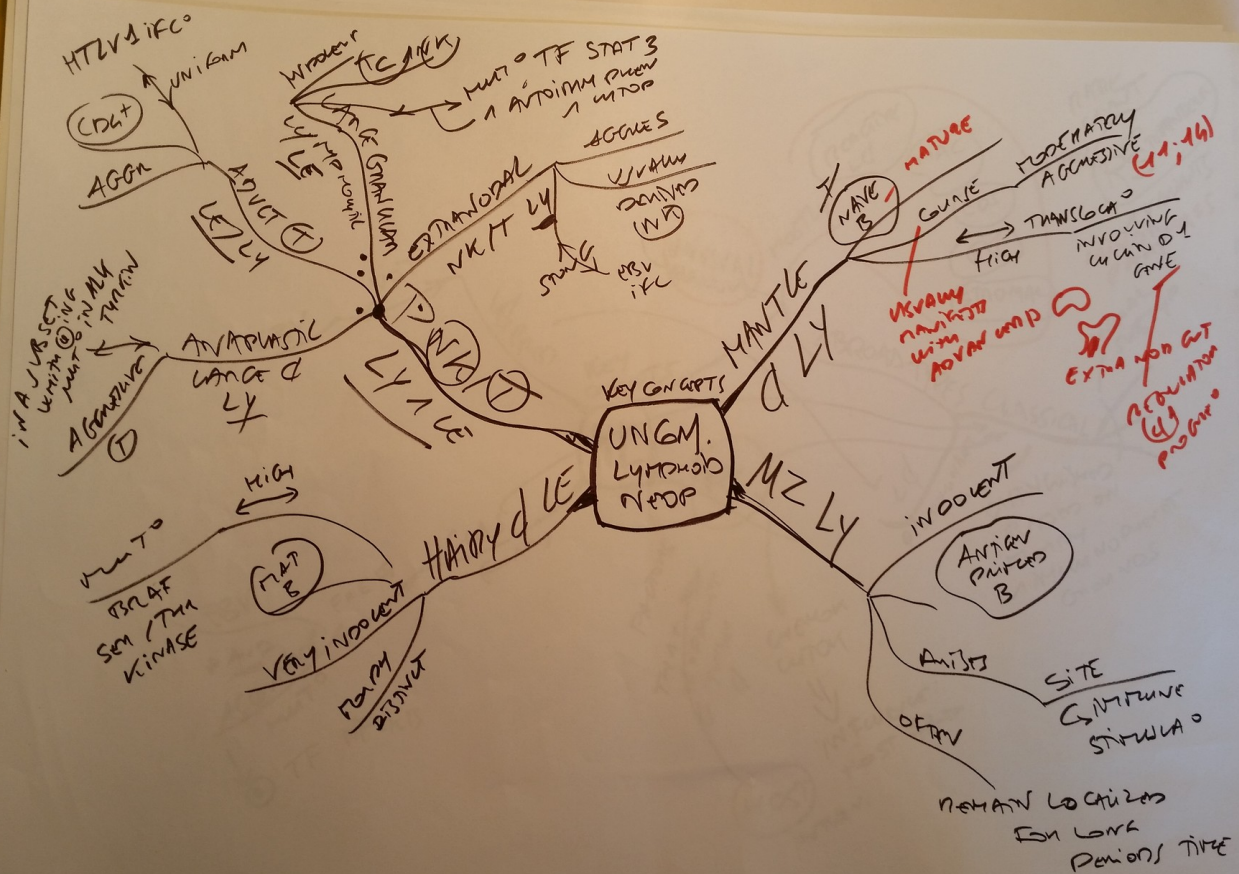


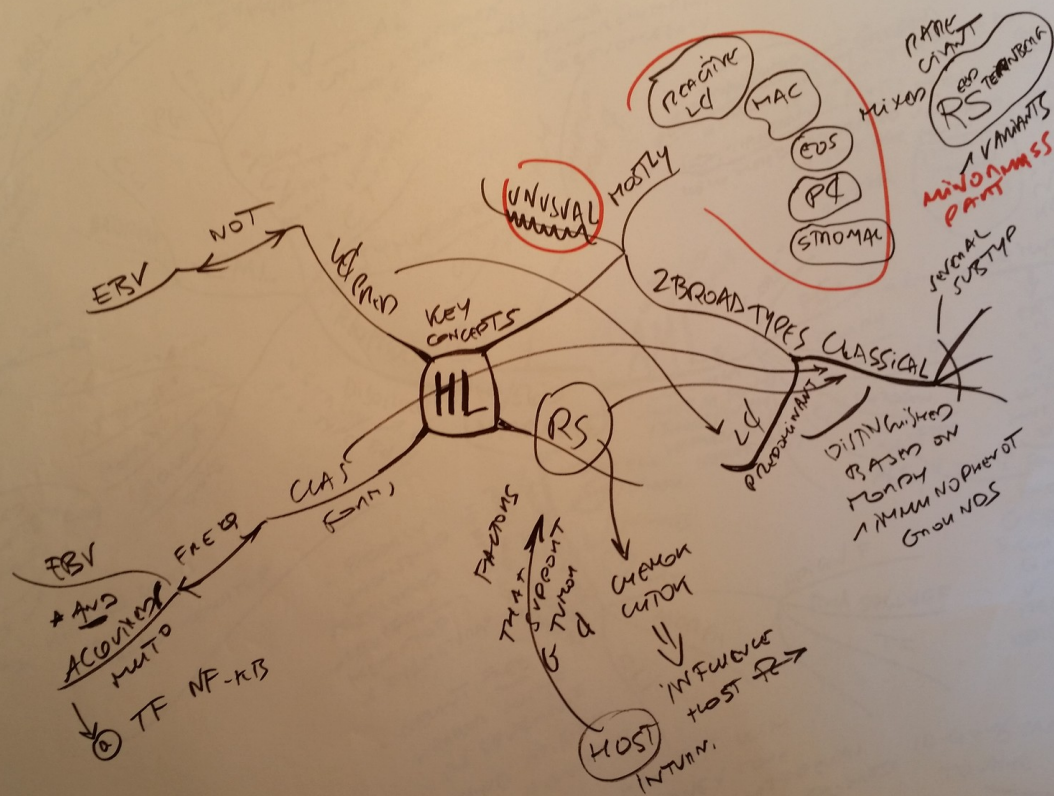




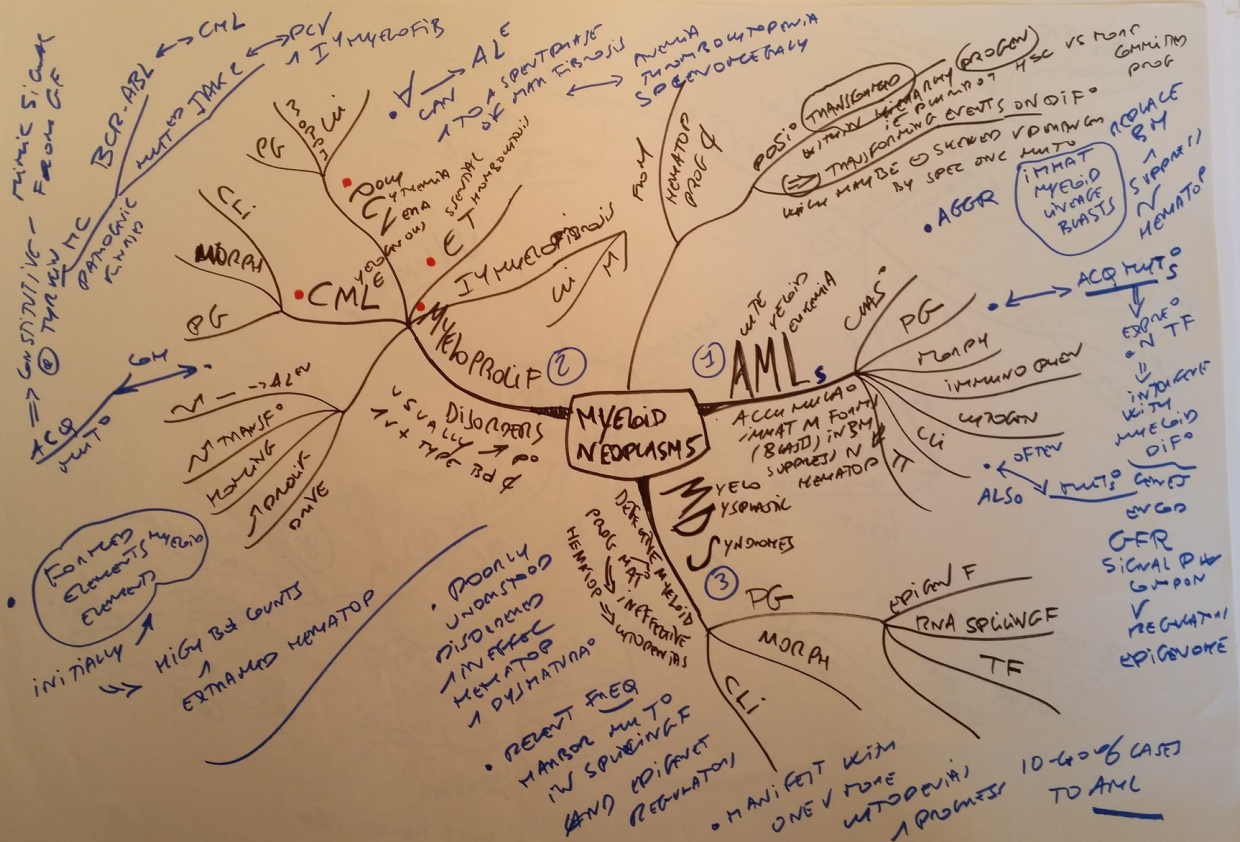


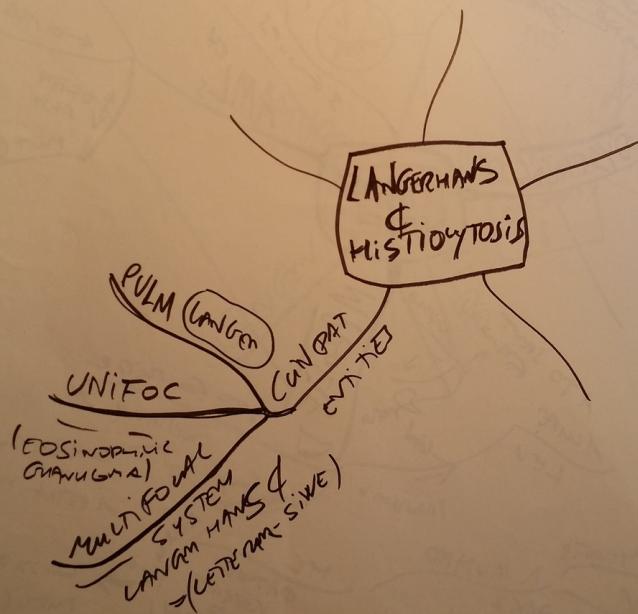




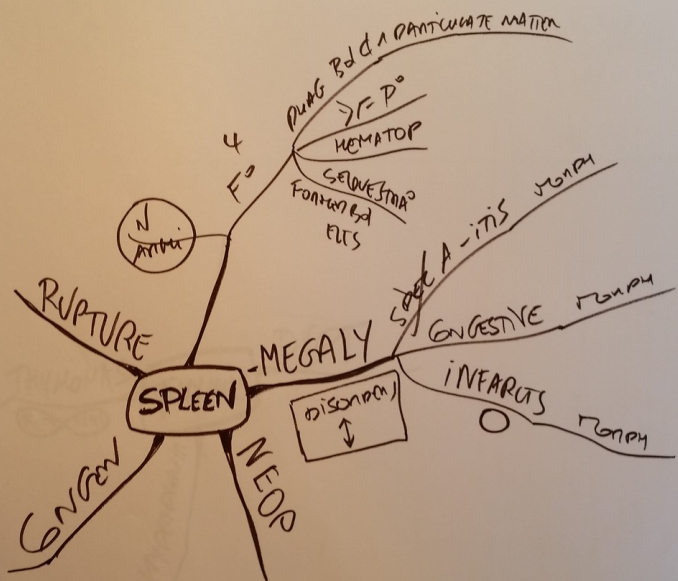


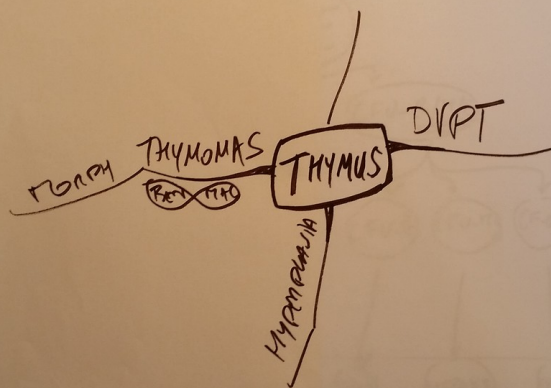




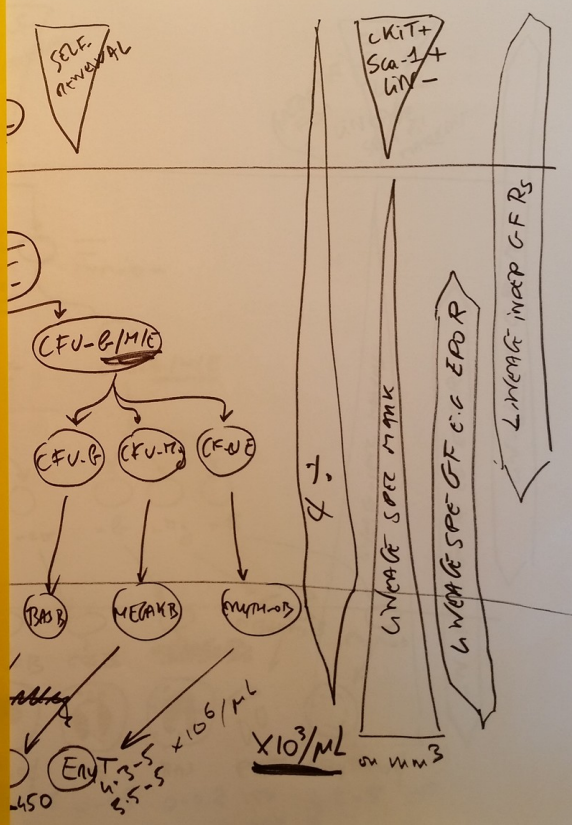








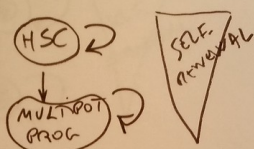




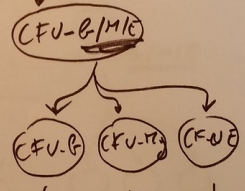
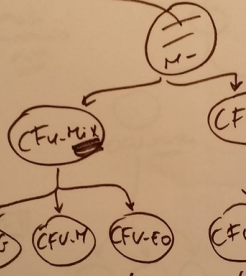
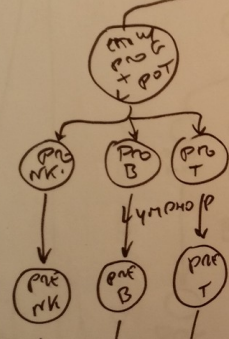
DIPT & MAINTENANCE HEMAT TISSUES

CLONING  
FUNCTIONAL  
UNIT

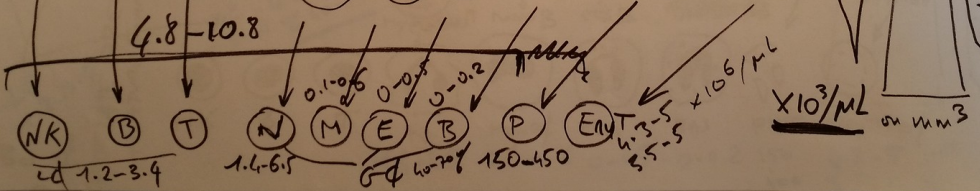
LINEAGE SC  
- SPEC. MARKERS  
- NEGATIVE FOR



GM-MPH  
PNC



LATE PREC  
→ MATURE

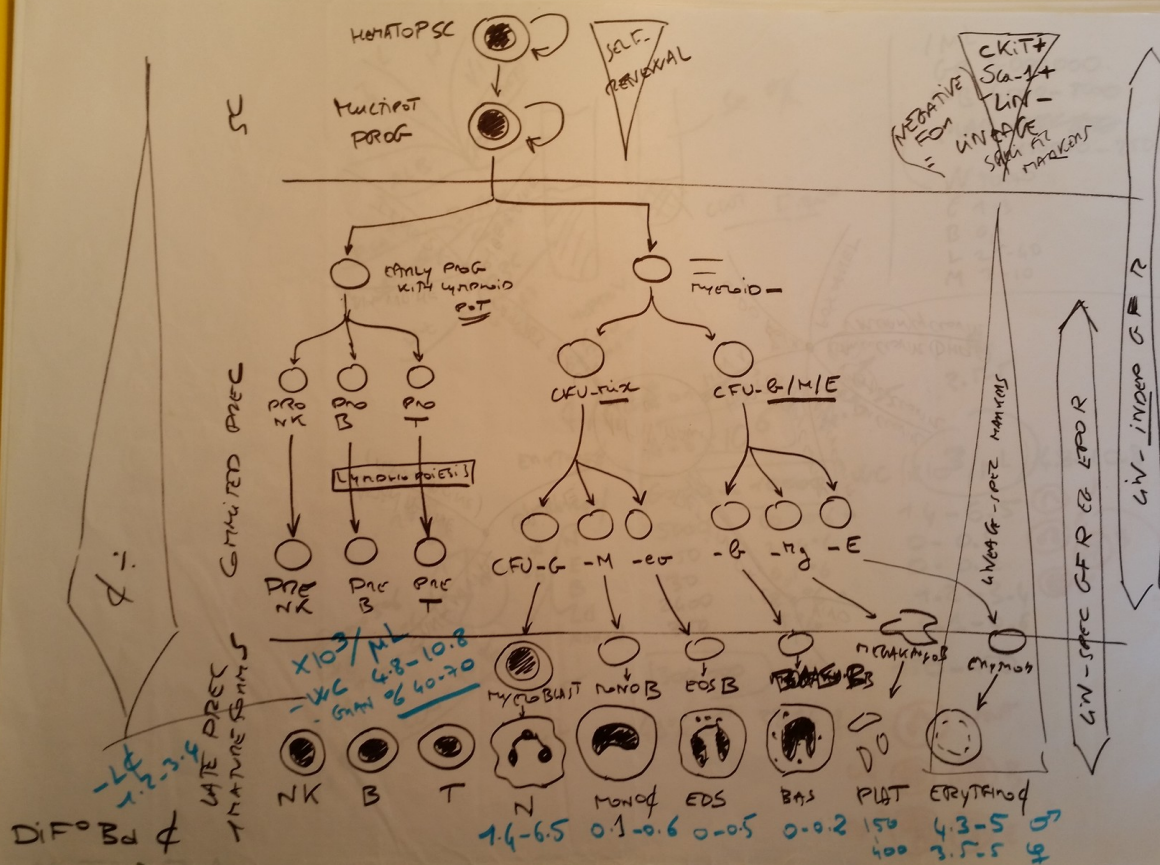


CKIT+  
Sca-1+  
Lin-

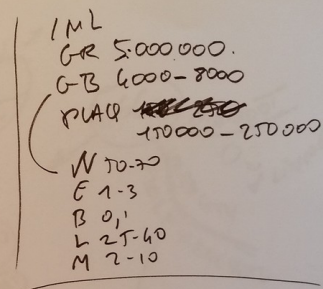
LINEAGE SPEC MARK

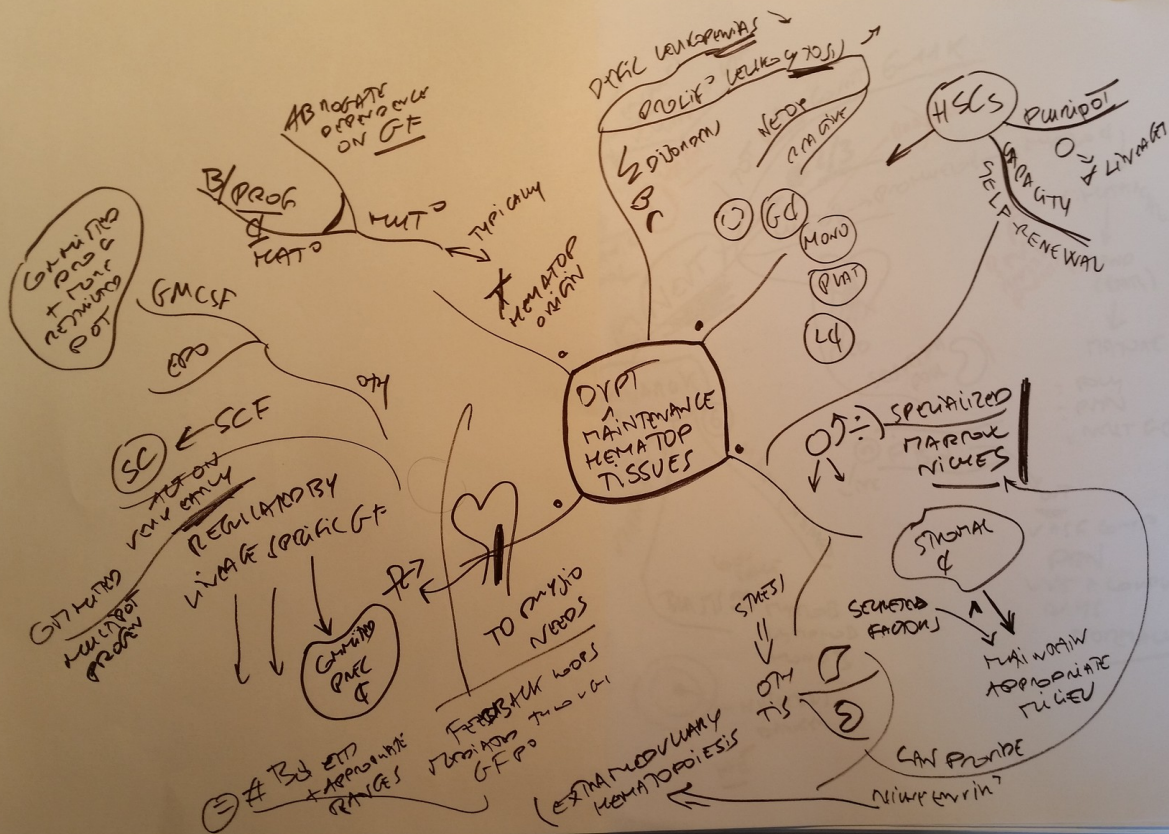
LINEAGE SPEC CF C.G. EPO R

LINEAGE INCOMP GFRs



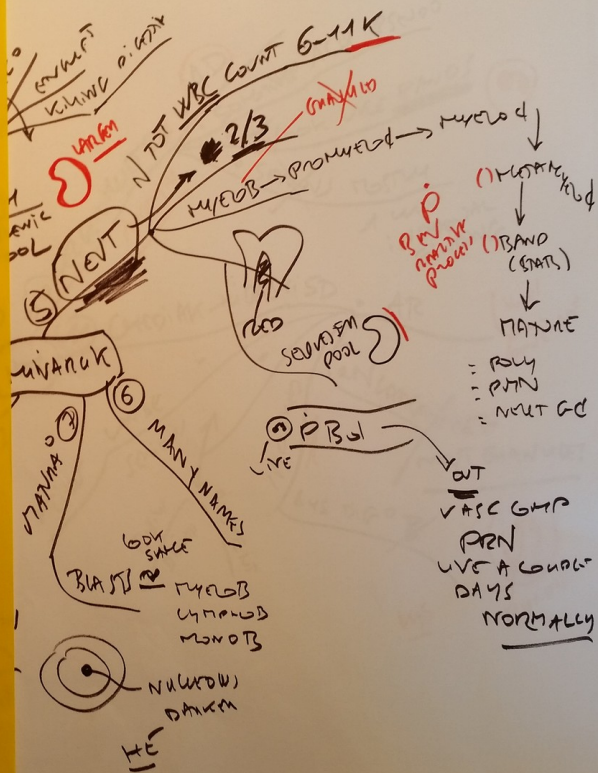


[illegible]

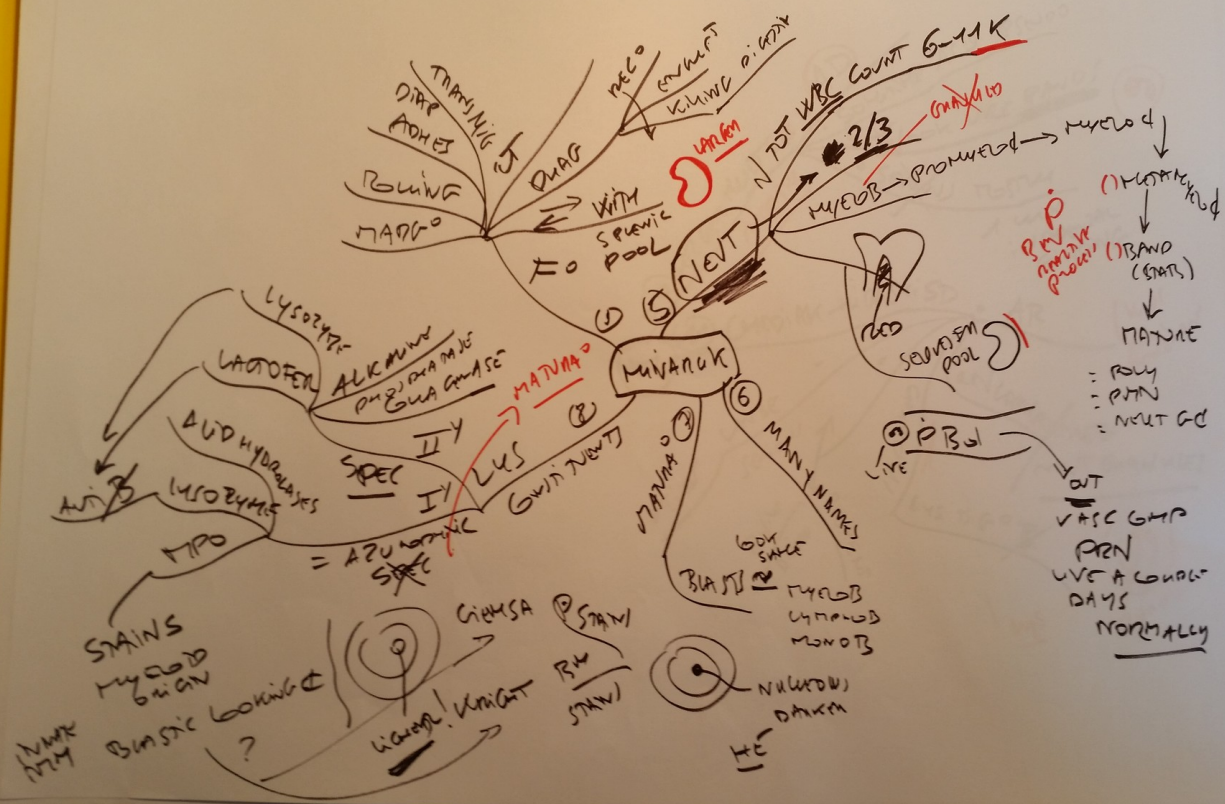


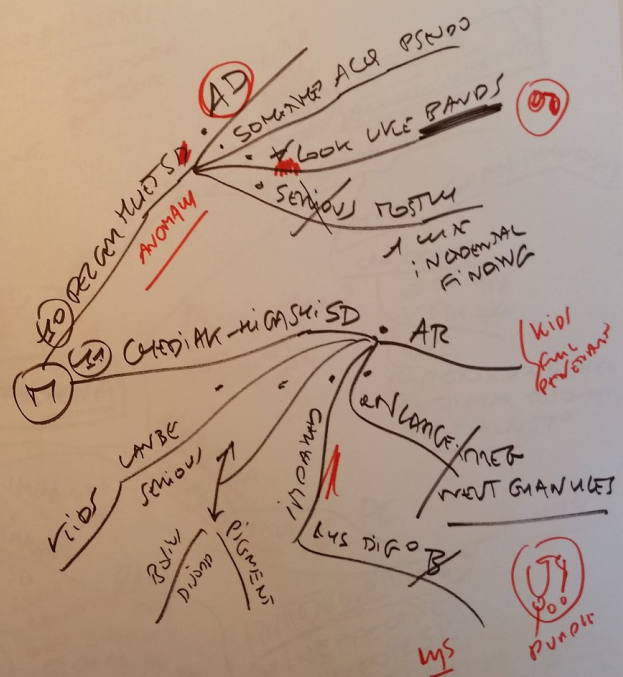
LEUKOPENIA

Neutropenia  
Agranulocytosis

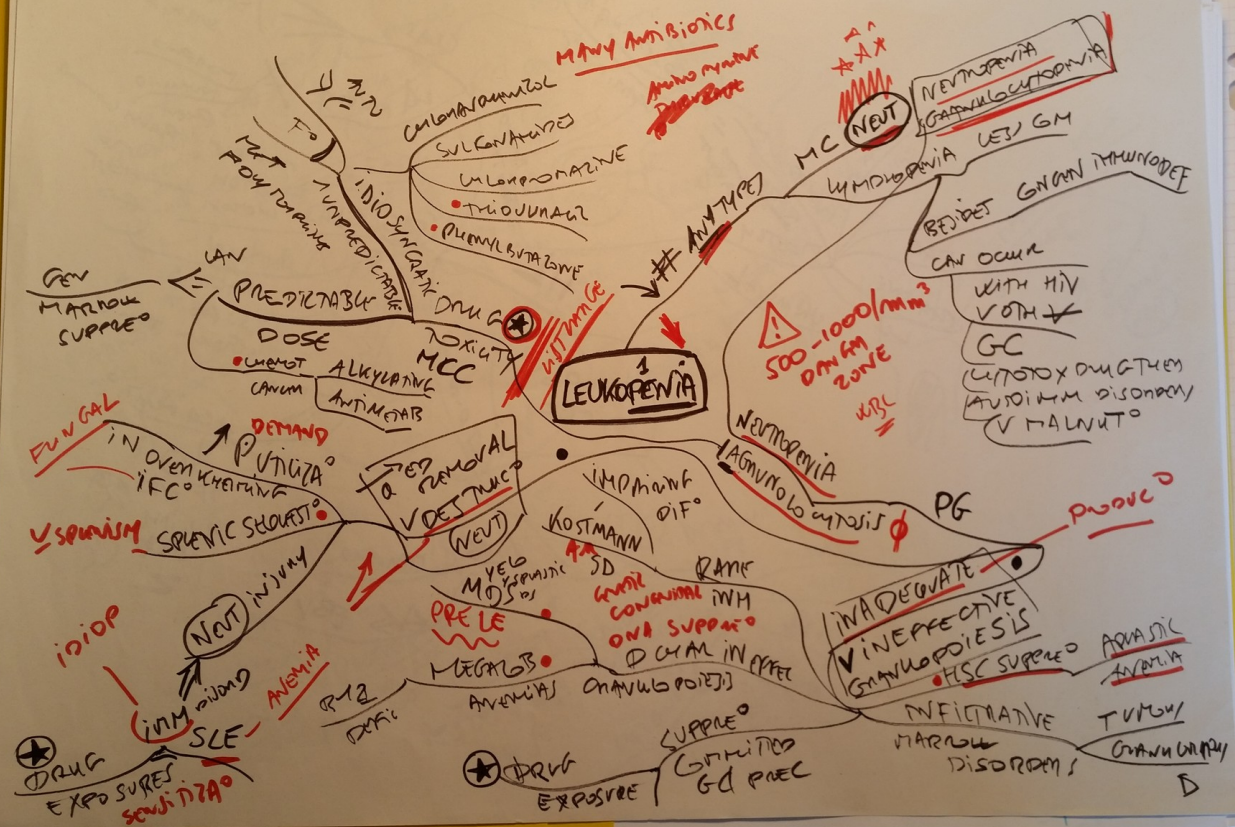




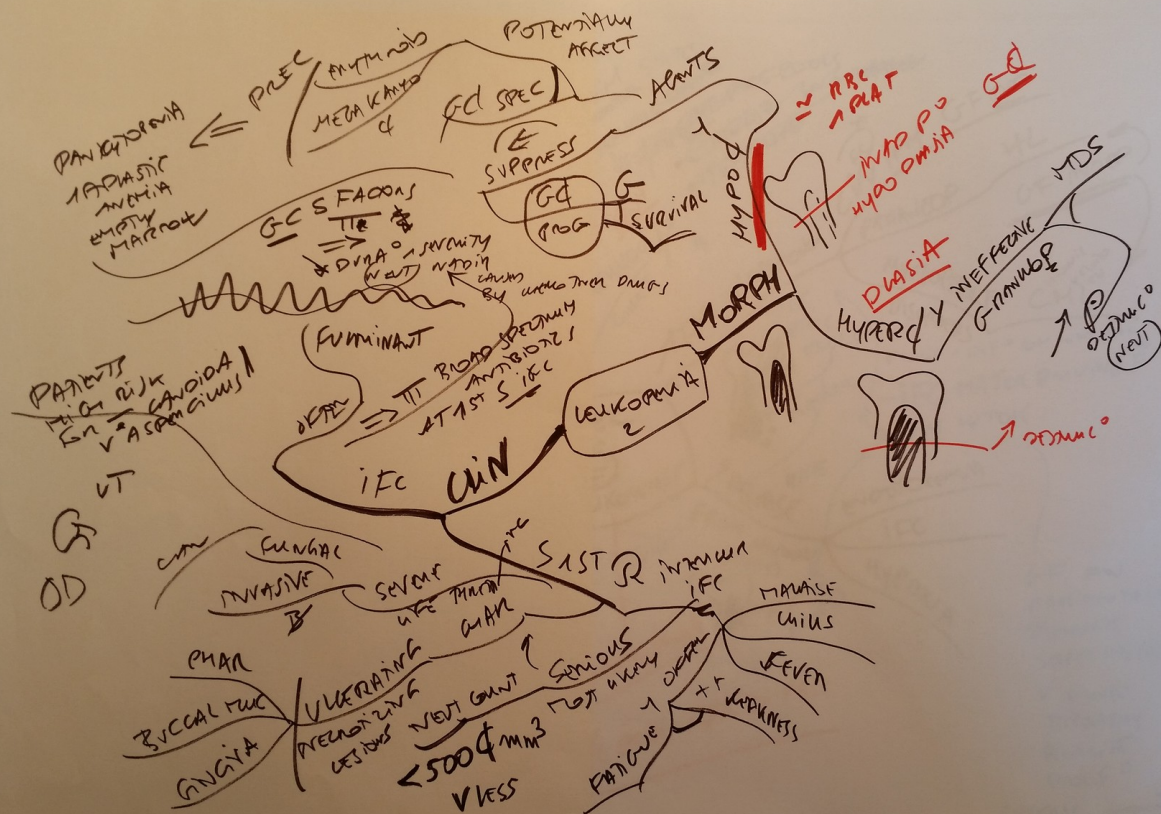






















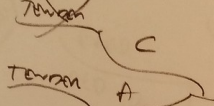
[illegible][illegible]



HP-T SHW

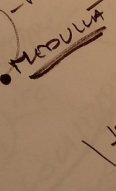
- LAD PATH
- LAD (VIA)
- DENDRITIC PATHIC
- N SIZE
- PALPA
- TO IN ENLARG
- DIE / FOL
- T/B INK SMALL PLATE
- PACE POWER

"SPREAD AT LIVER"  
? ENLARG  
B/FOL  
LYMPHATIC

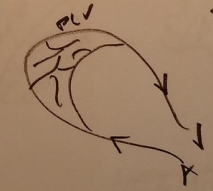


CALLED  
LYMPHADENITIS  
HYPERPLASIA  
BEN  
MOL

- HD / NONHD
- COX
- SUB CAPS SINUS
- FOL I & II?
- PMV ISL ZONE



2  
HP-T SHW



LN  
(MINOR)

LESS THAN 6 W  
SUBSINE  
FOLLICULAR HYPERPLASIA  
SINUS HYPERPLASIA  
COMMON

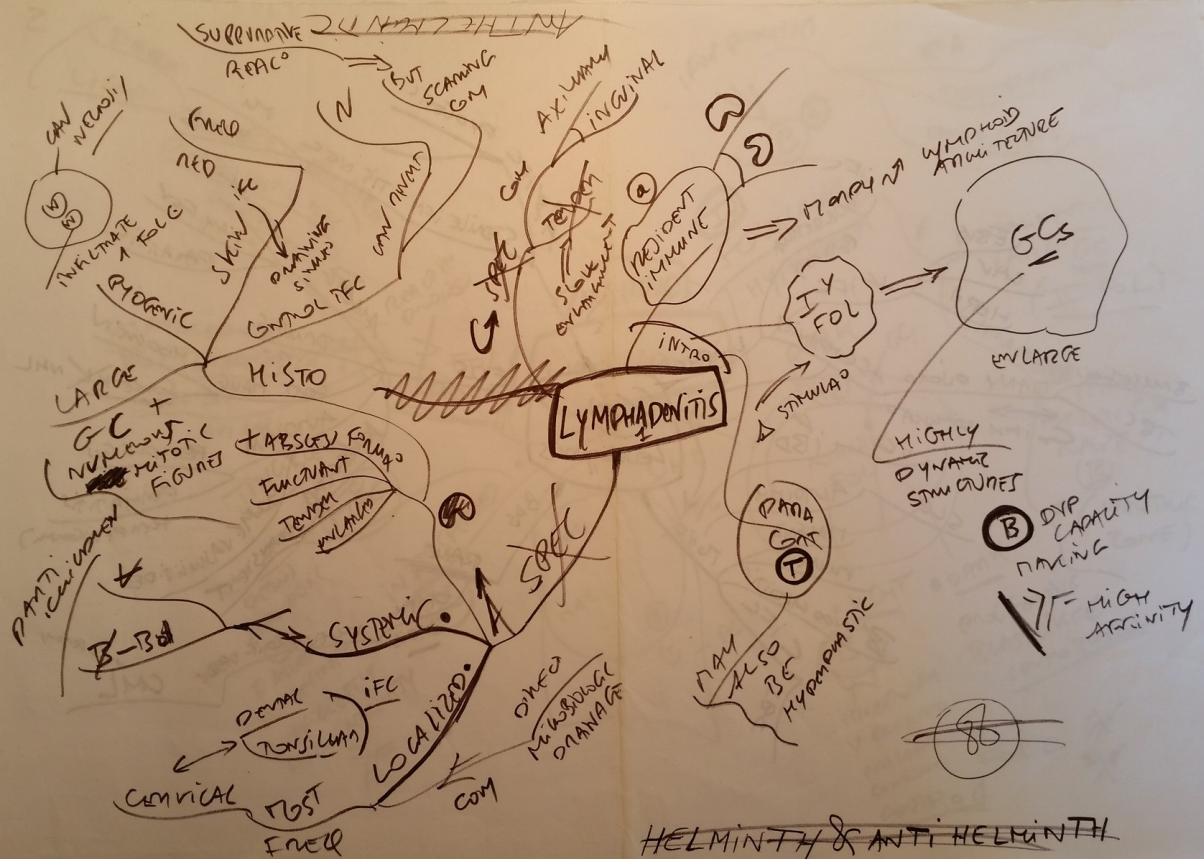
ENLARG GNT II FOL I I# GNT  
GC  
"FOLLICULAR" HYPERPLASIA  
FOLLICULAR HYPERPLASIA  
VS "SINUS HYPERPLASIA"

LY  
METO  
LA  
CAPSULE  
GNT I  
SUBCAPSULAR SINUS  
PMV GNT  
PMV VLM  
PMV ULM  
SINUS

ADJ STAGE  
FEATHER  
STAGING

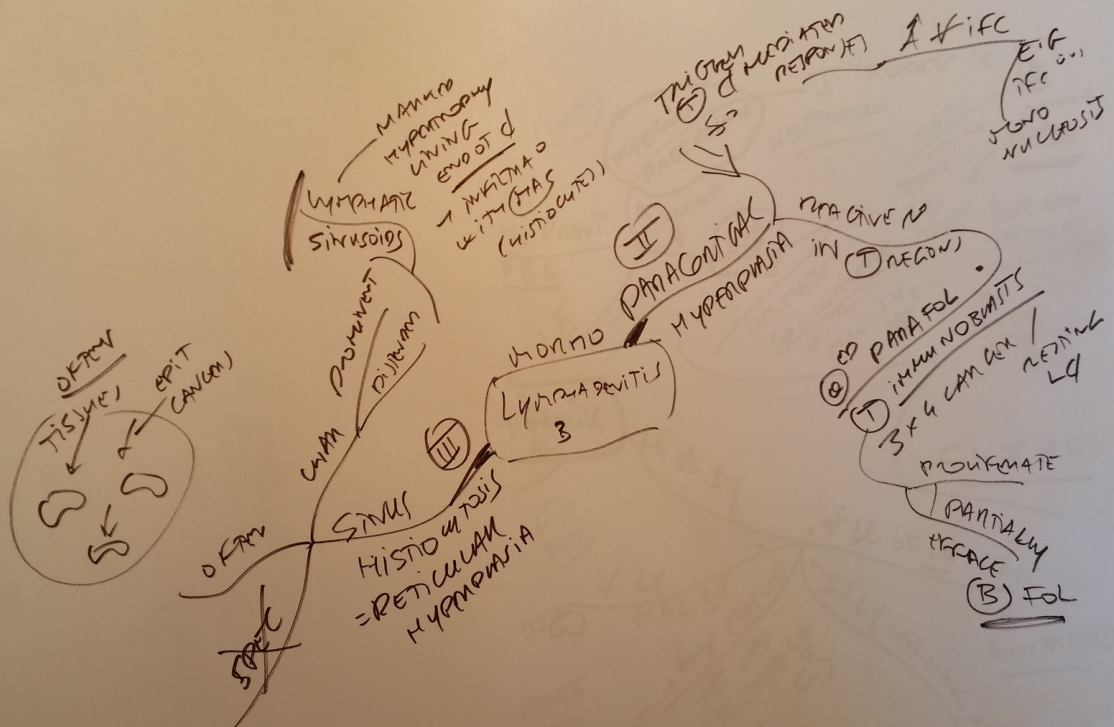
2 BEN  
PROVIA  
MAY BE  
GNT MAY  
CANCER  
EVEN IF  
NO  
IN LN

4



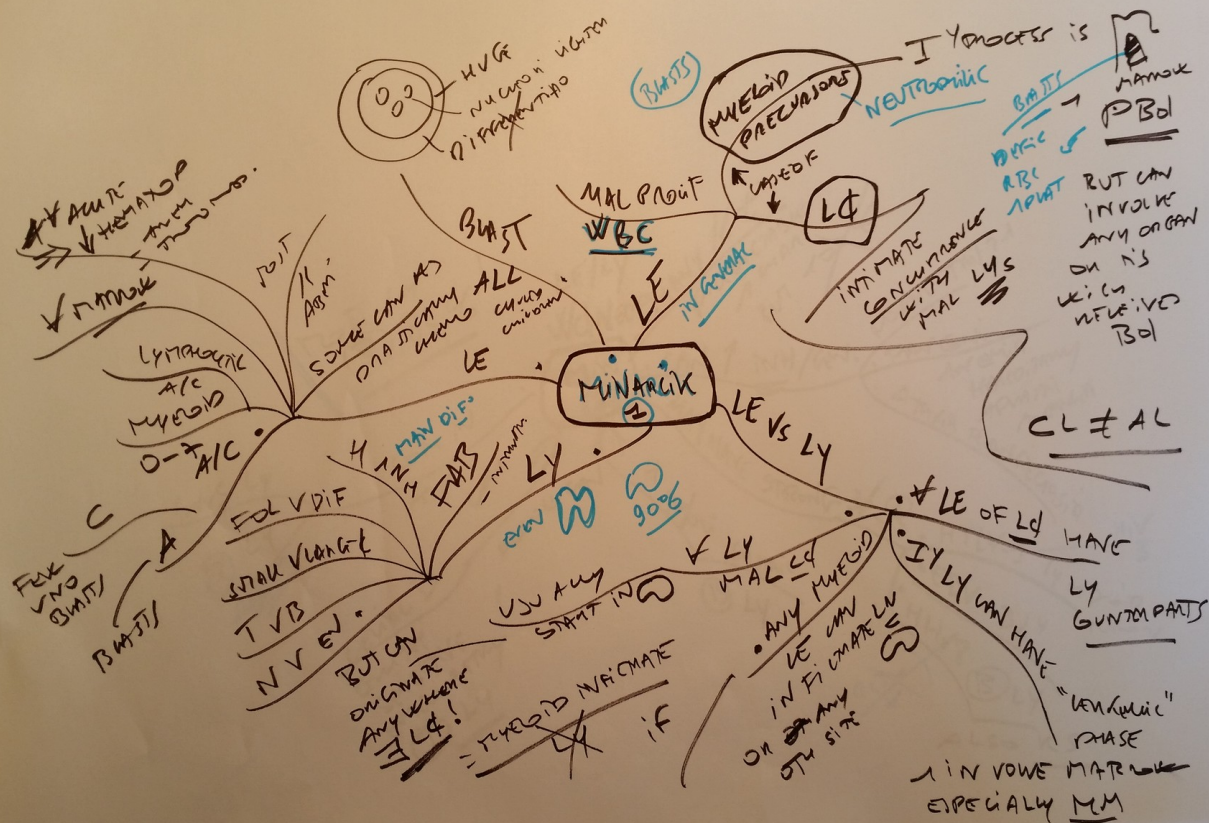




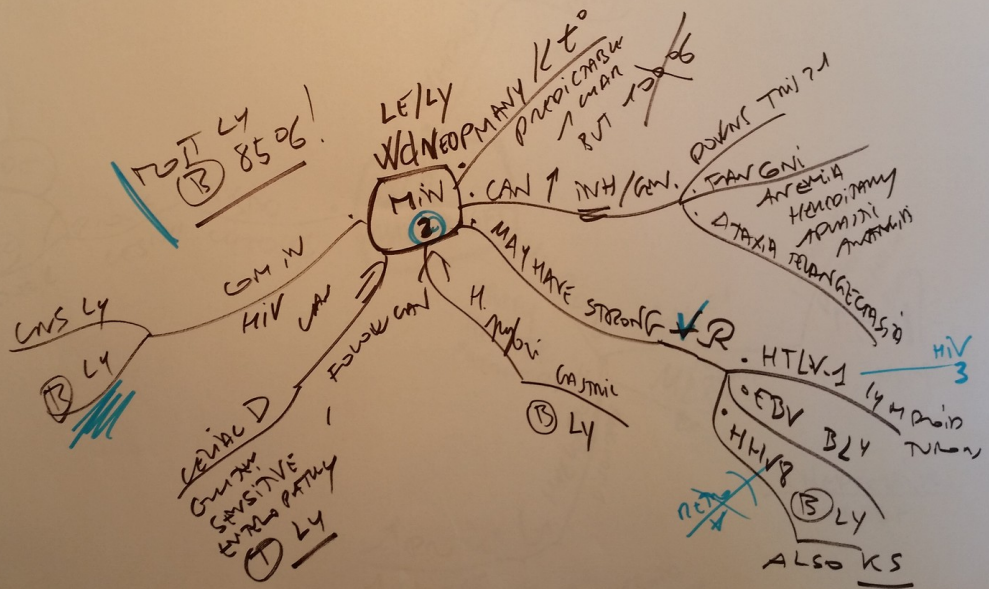


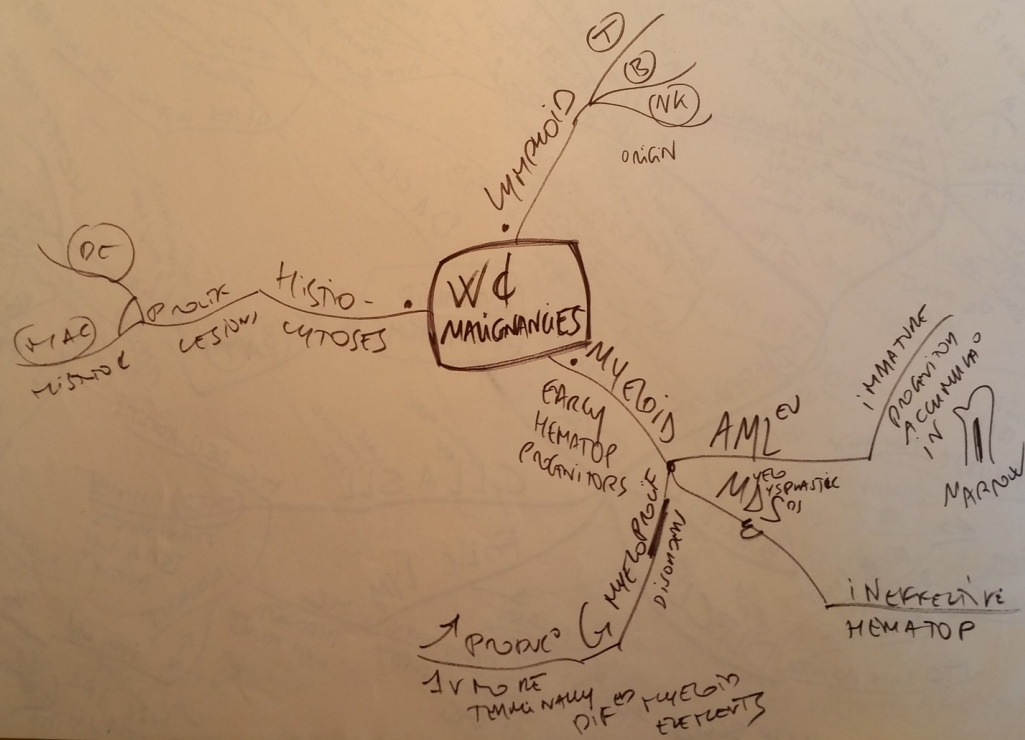


IY process is neutrophilic  
 PLASMA  
 MYELOID PRECURSORS  
 LQ  
 MAL PROUT WBC  
 LE  
 IN GROWTH  
 IMMATURE CONCURRENCE W/ TH MAL LYS  
 UNARIX  
 LE VS LY  
 90%  
 V LY MAL CD  
 ANY MYELOID LE CAN IN F1 UNATE LY  
 OR ANY OTN SITE  
 IY LY CAN HAVE "LEUKEMIC" PHASE  
 1 IN VOWE MARK  
 ESPECIALLY MM  
 CL  $\neq$  AL  
 BUT CAN INVOLVE ANY ORGAN  
 ON IS W/ CL REFLEXED BCL  
 BCLT  
 PLASMA  
 PDB











## ETIOLOGIE 1 PG FACTORS

RESPONSIBLE FOR AgR VARIATION

CAN ALSO BE GENERATED BY ACTIVITY V(D)J RECOMBINATION

1 ALSO ② DTV PROTO-ONC BCL6  
THAT CAN PUT C-MYC ONC  
EXPOSE 3 UNOM GROUP OF Ig PROMOTER  
C-MYC/5' TRANSLATION  
INDUCE

ALONG Ig CHAIN & SWITCHING E.G. M → S  
DNA RECOMBINATION → 1 SOMATIC HYPERMUTATION TO AA & AFFINITIES

UPREGULATE AID  
AID ENZYME

APRM Ag STIMULATED

DNC

Y (B)

DURING ATTEMPTED AB DIVERSIFICATION

PRESENT TWICE CAN INAPPROPRIATE EXPRESSION ↑ NOVEL FUSIONS ON GP

RANDOM TRANSDUCTION  
K TRANSLOCATION  
DM AGO

ETIO & PGF W. NEOP

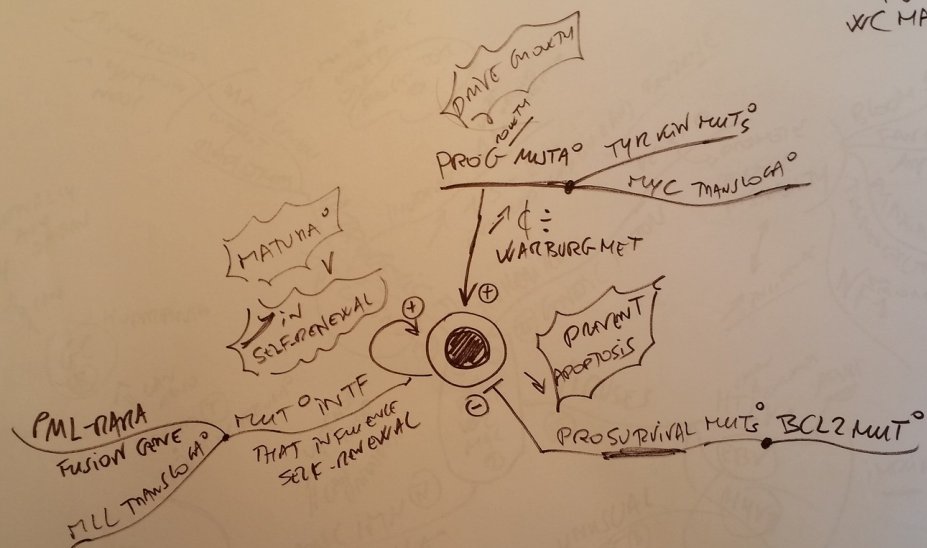
ALT OF GENES CAUSING DVT G  
SURVIVAL  
↑ ACTIVITY GAIN F°

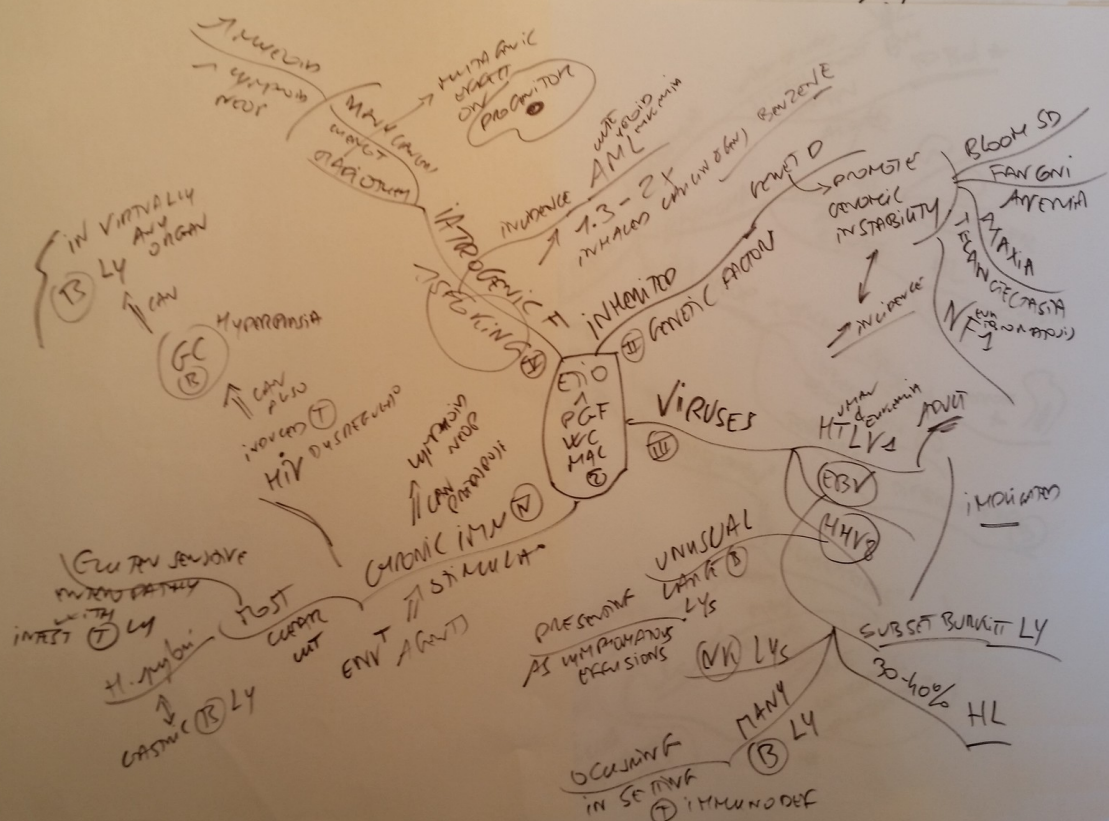
PROTO-ONC OPTIMIZED IN LYMPHOID

BY TRANSFORMING AgR PRET 10 DIVERSIFICATION



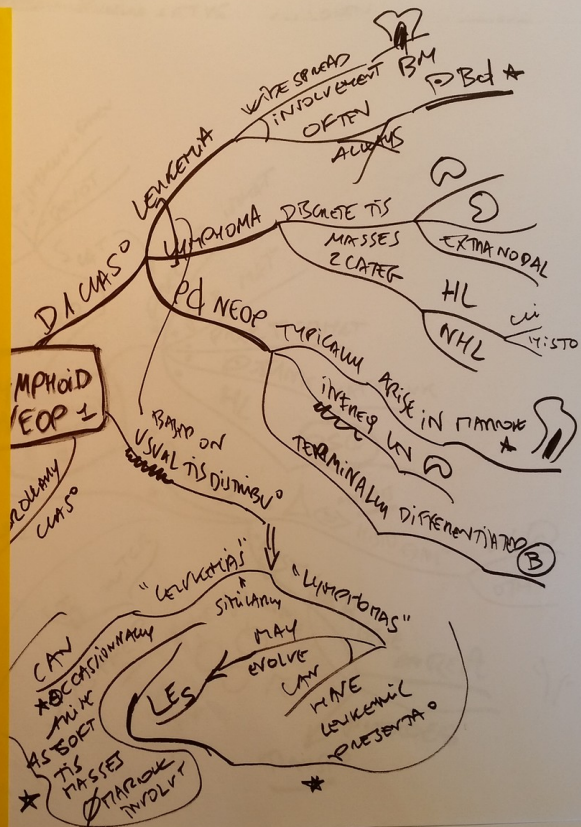
PG  
WC MALIGNANCIES

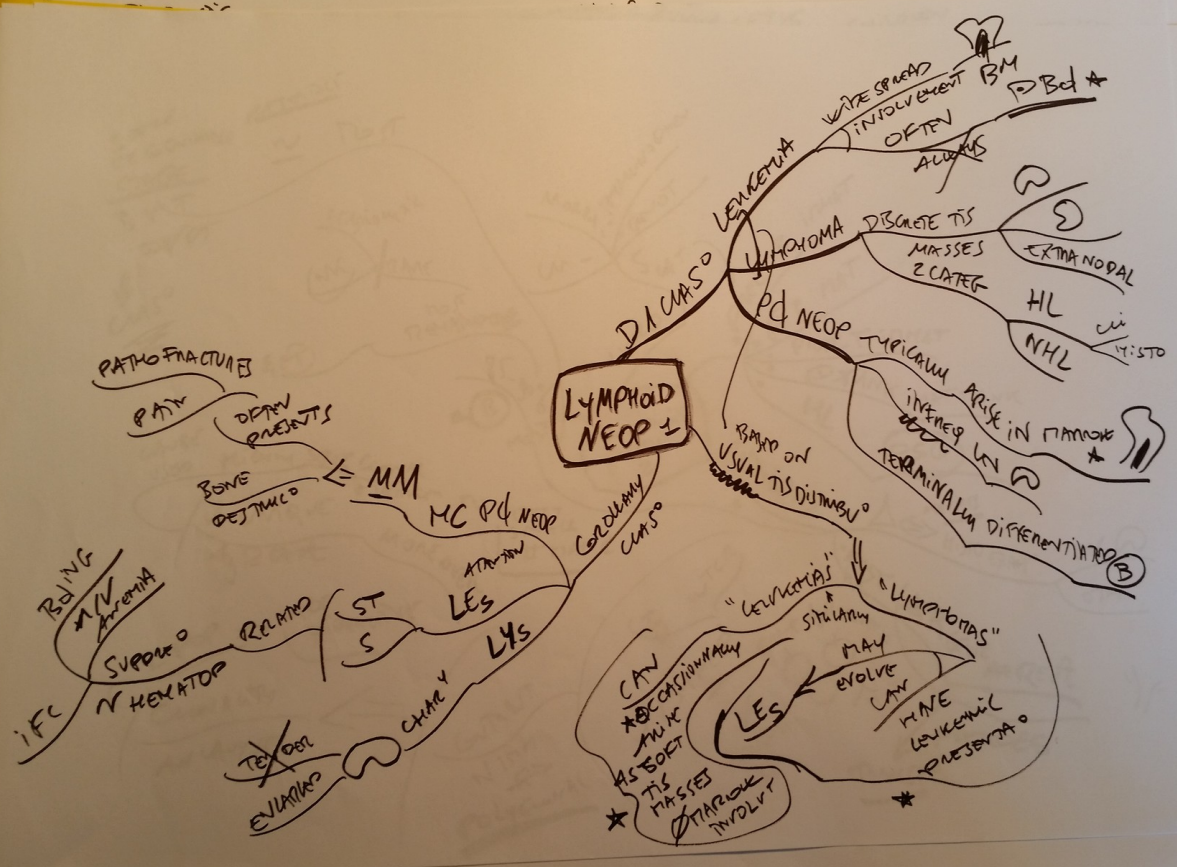




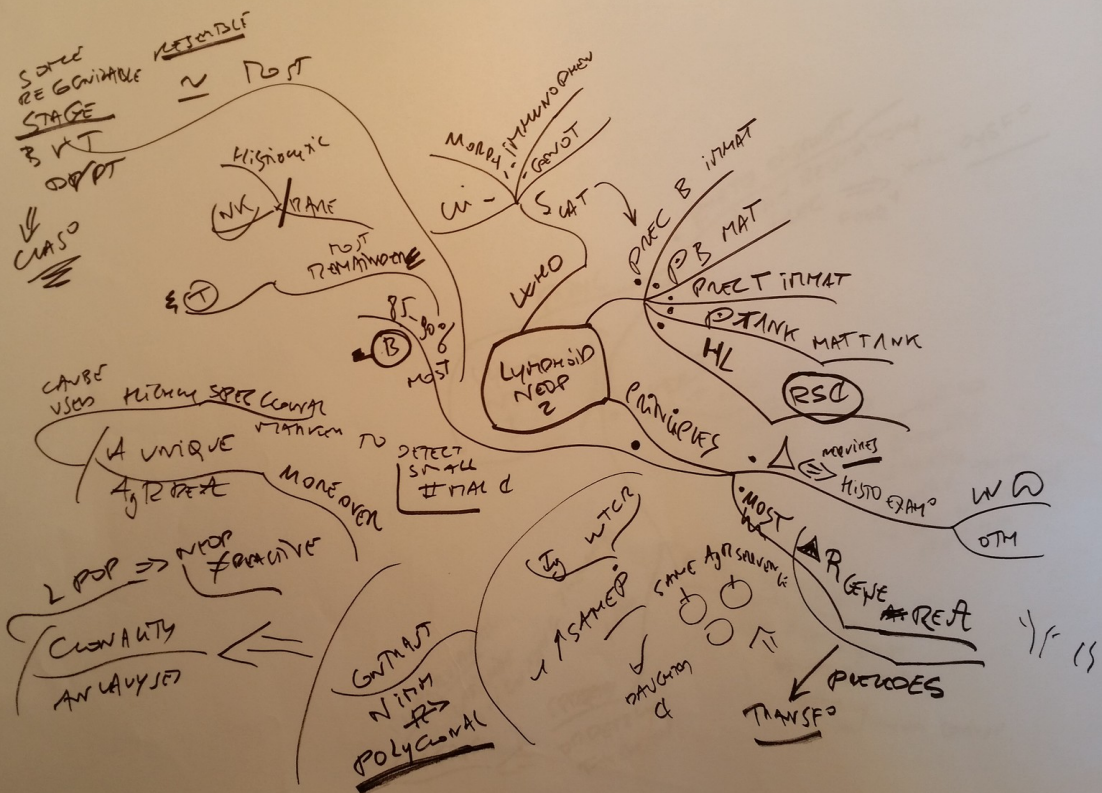


# LYMPHOID

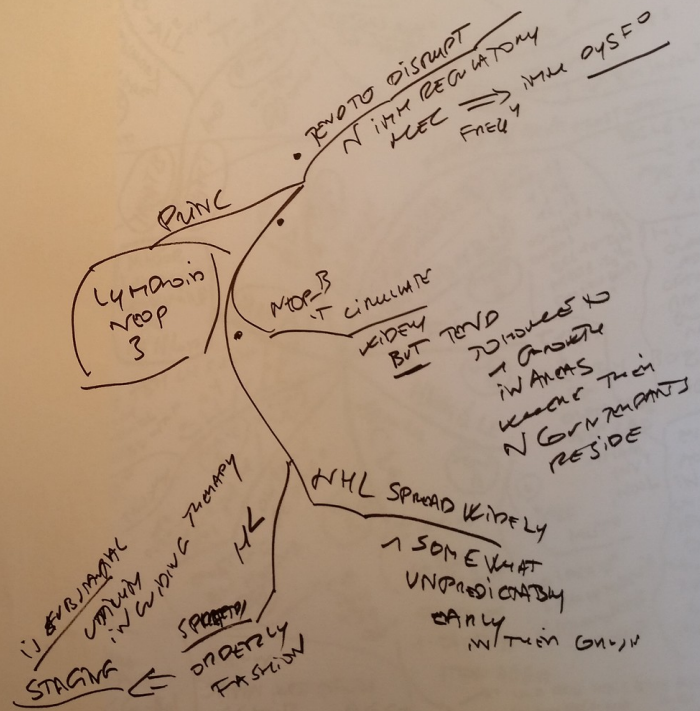




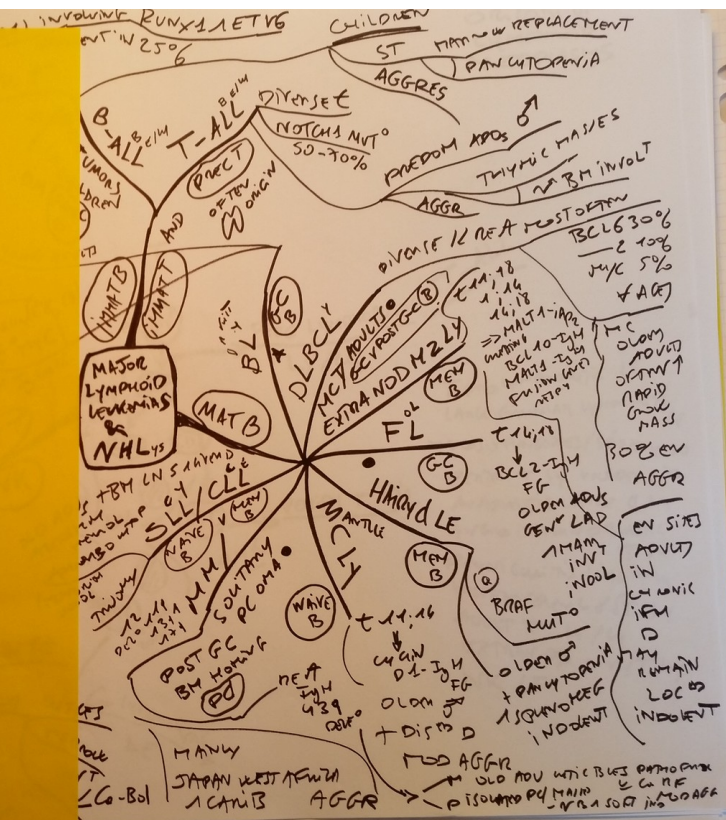








LYMPHOID LEUKS & NHL

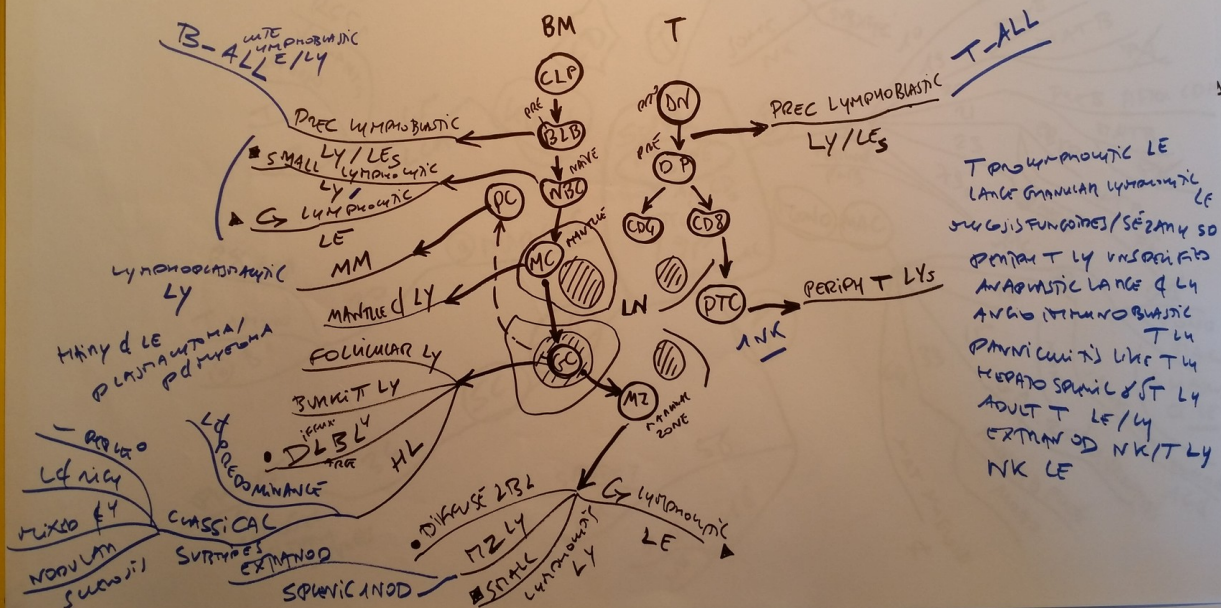


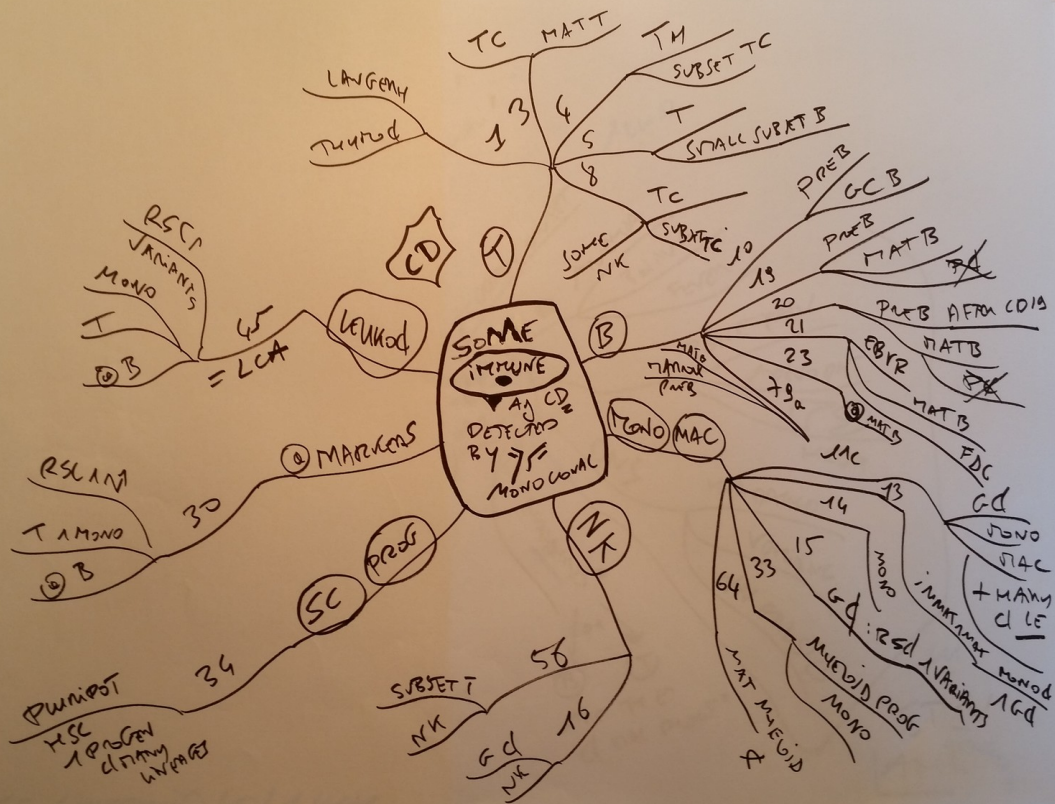






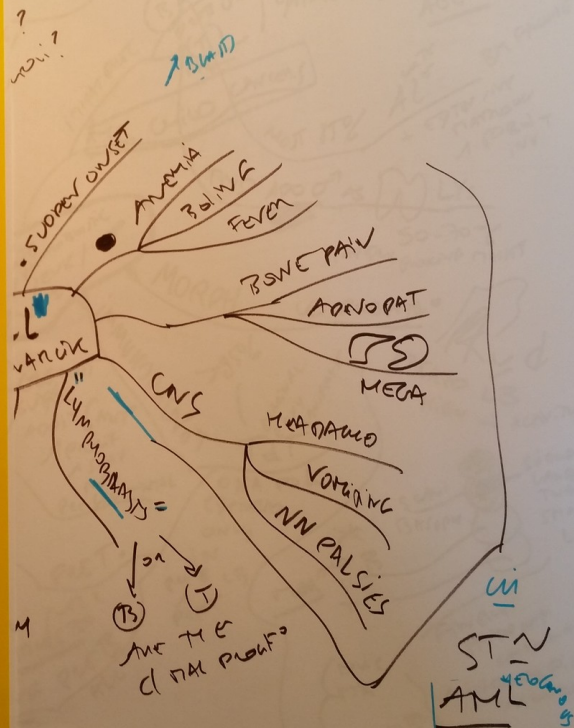
## ORIGIN OF LYMPHOID NEOPLASMS

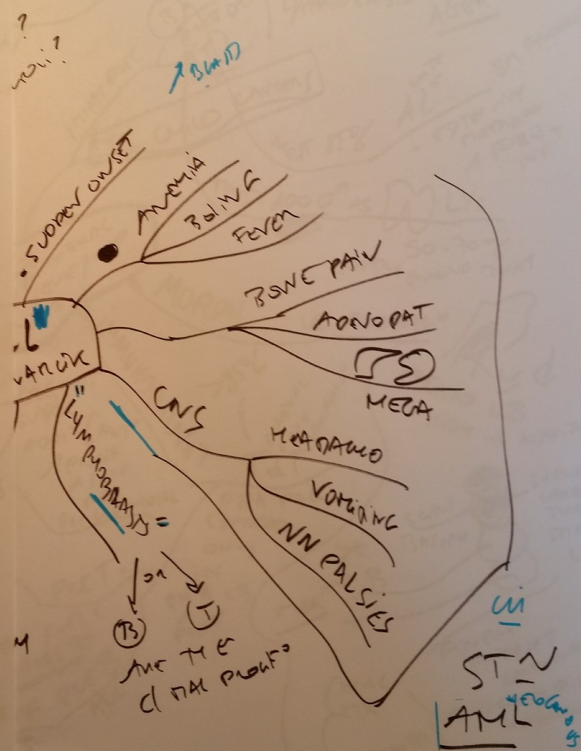






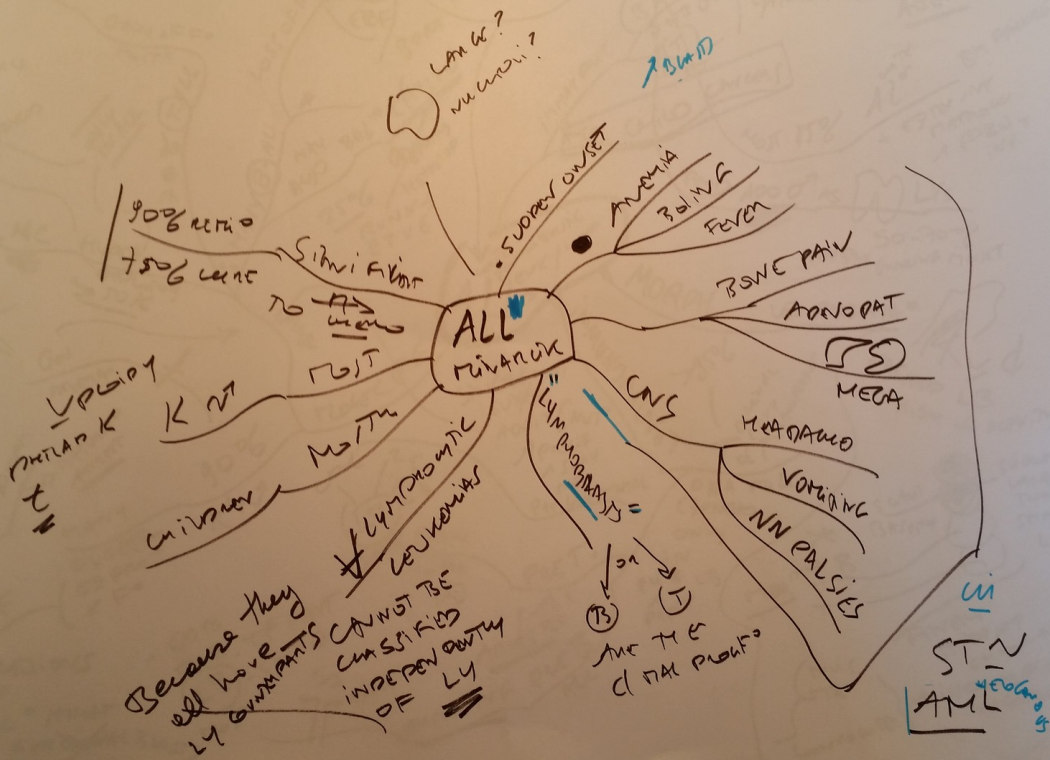
GM FORMS LYMPHOID LEV 1 LYM

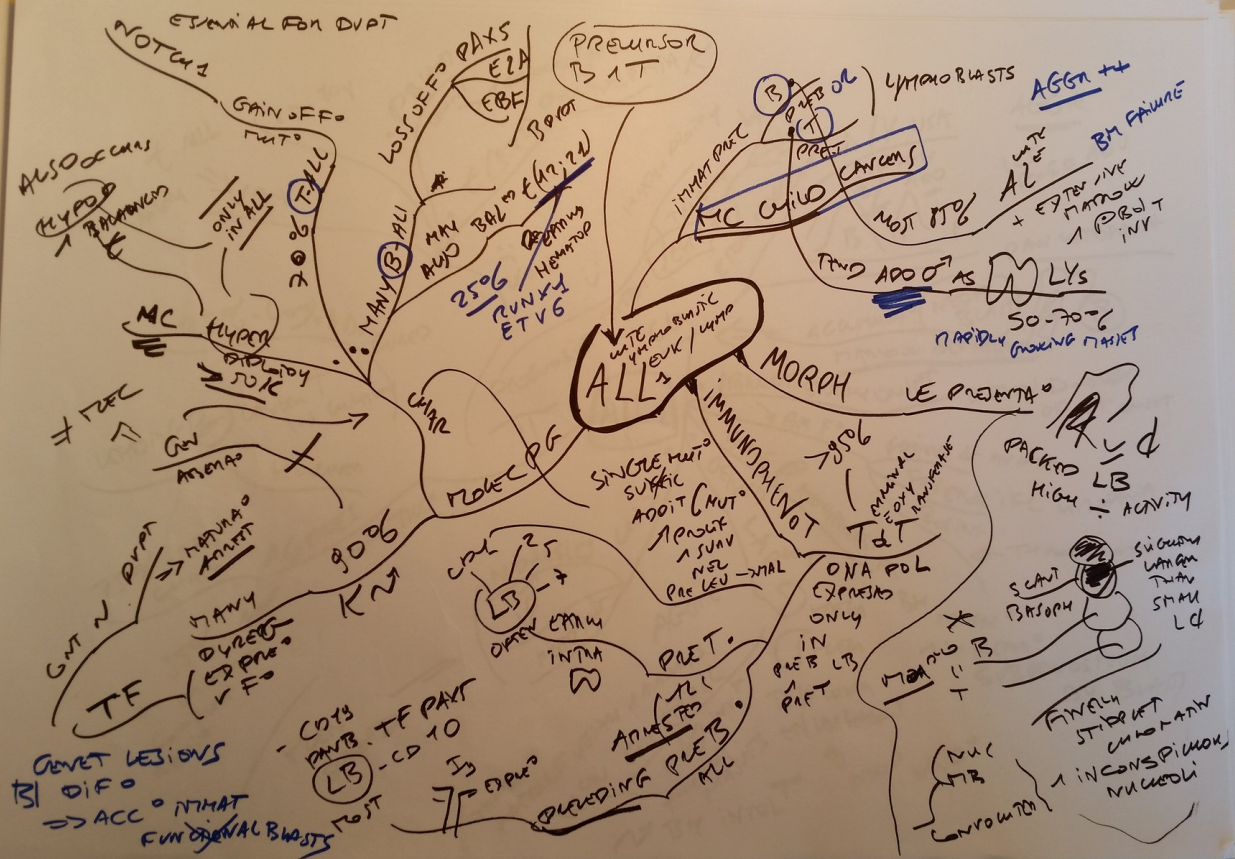




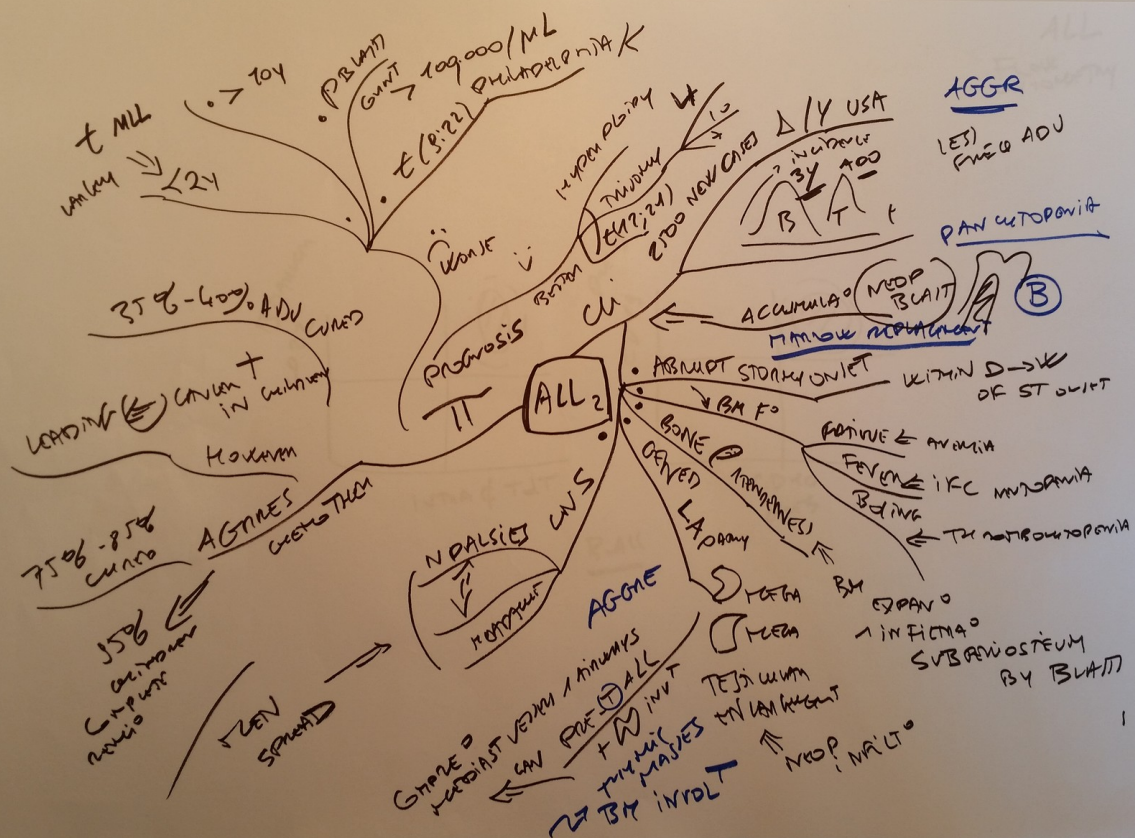
ALL / LYMPHOMAS



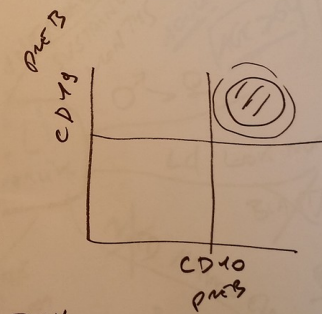
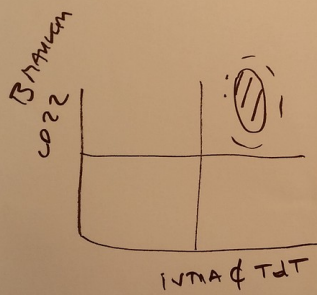








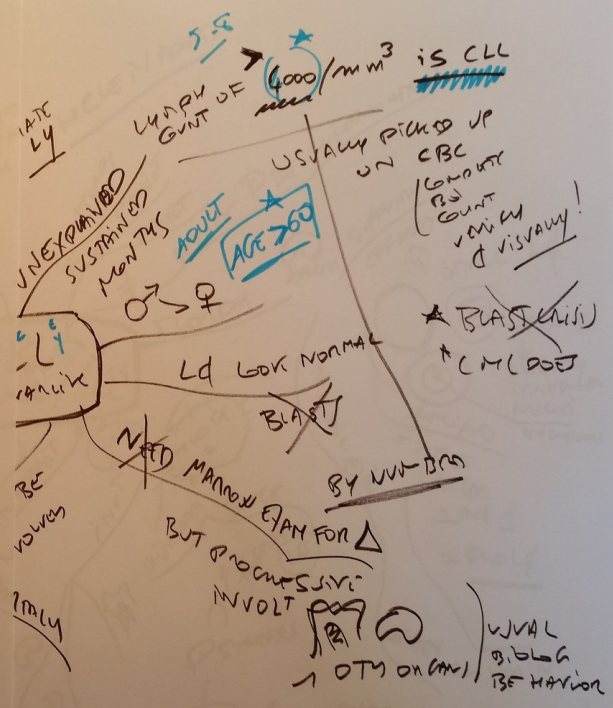
ALL  
Flow  
cytometry

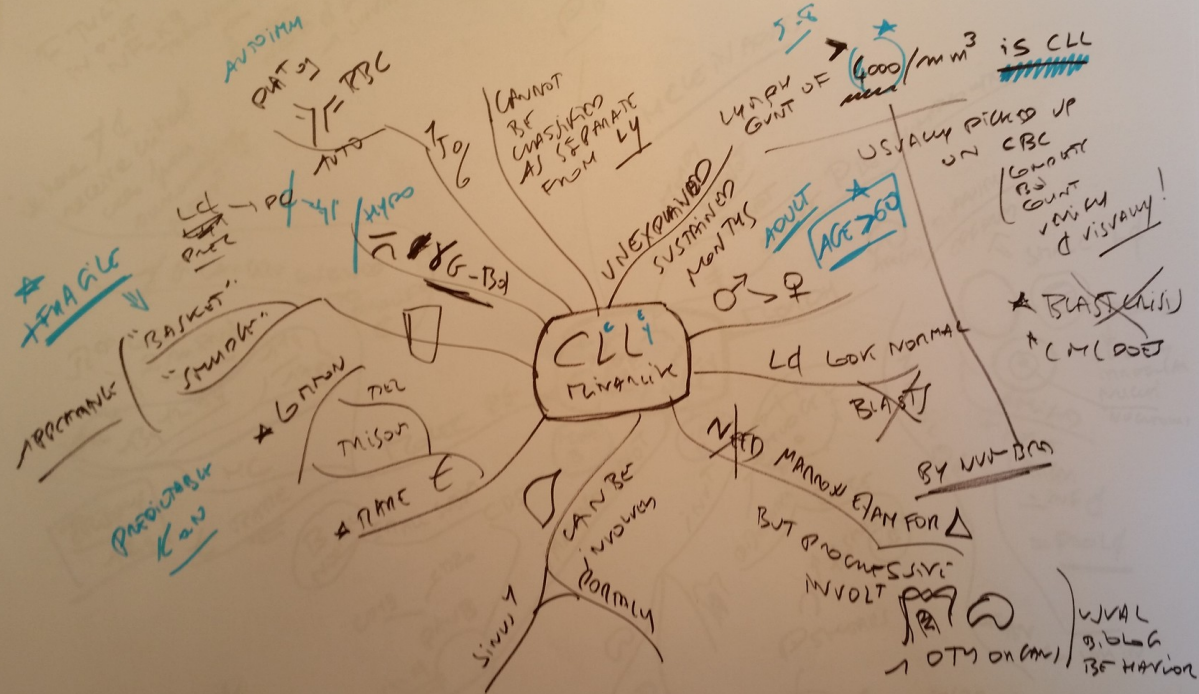


B-ALL



CLL





F THAT  
IN OVER  
NF-KB  
TRANSMISSION  
PROTEIN  
NEED d 6  
1 SURVIVAL

we have 1d  
receptor critical  
uses from  
dysregulation  
NIGHT

76 LAMINAR GROWTH  
TO PROLIFERATE

PROG LOSS  
2 MARKS  
179  
179

TRIMING  
129

TYPICAL

LOW  
LEVEL  
SPE Ig

CD13 CD20  
PAINB

MCL IN ADULTS

CLL/SLL

PROG  
PROG  
PROG  
PROG

PROG LYMPHOMATOSIS

PROG

PROG  
PROG  
PROG  
PROG

PROG  
PROG  
PROG  
PROG

PROG  
PROG  
PROG  
PROG

PROG  
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PROG

PROG  
PROG  
PROG  
PROG

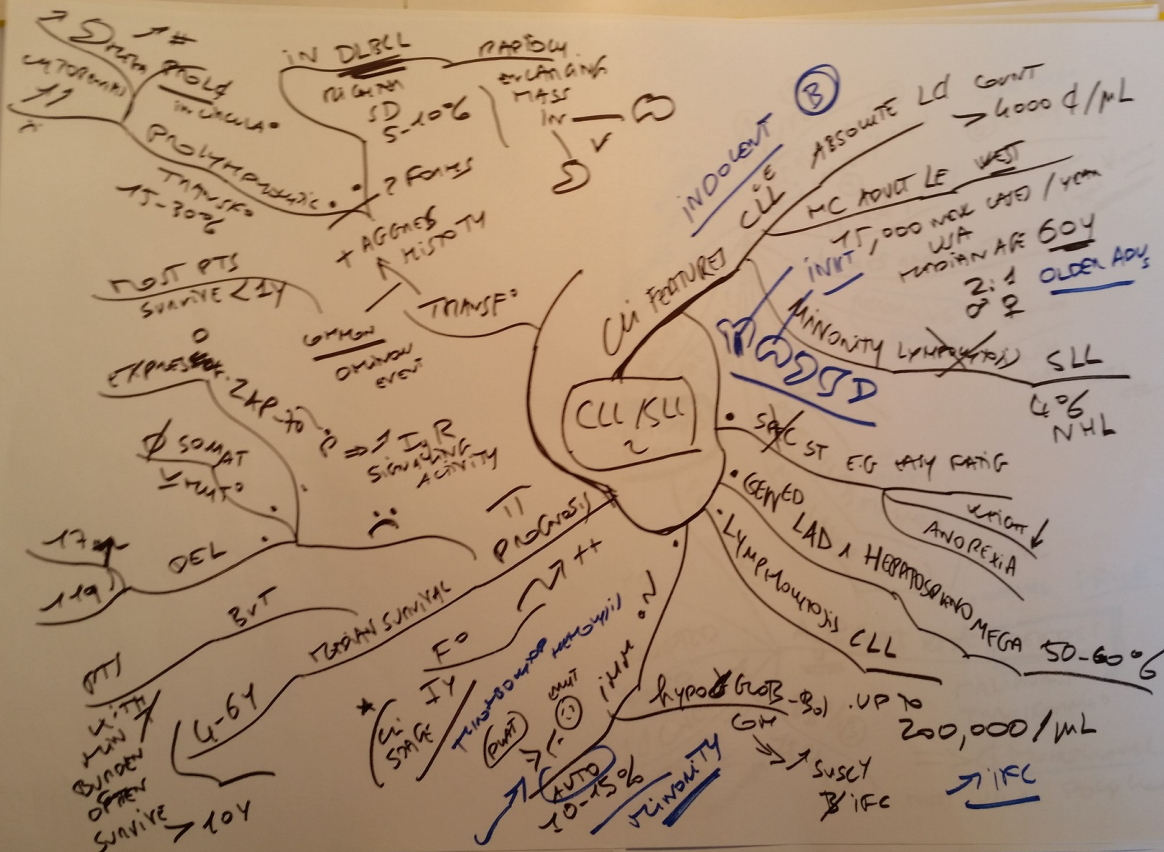
PROG  
PROG  
PROG  
PROG

PROG  
PROG  
PROG  
PROG

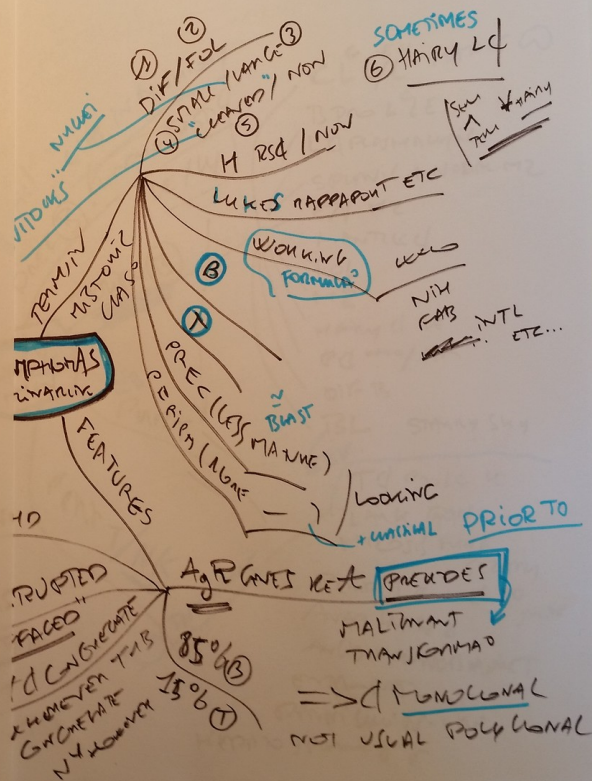
PROG  
PROG  
PROG  
PROG

PROG  
PROG  
PROG  
PROG

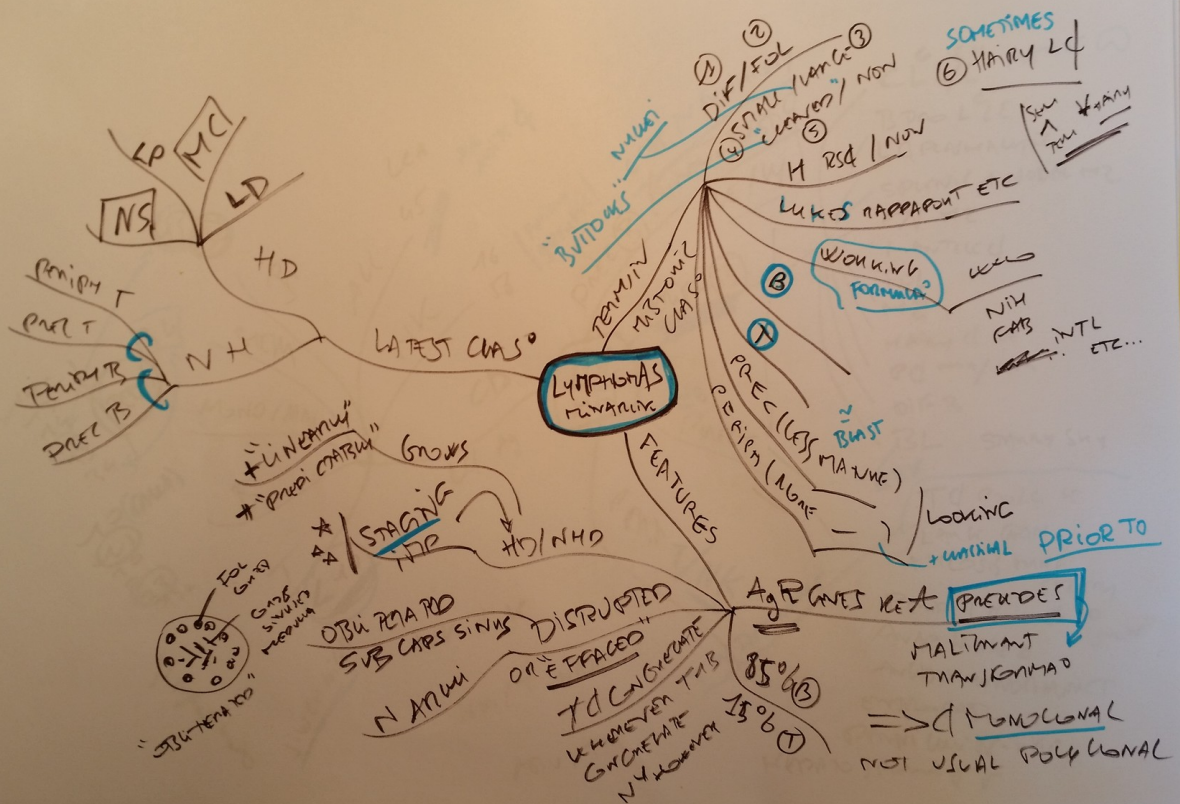




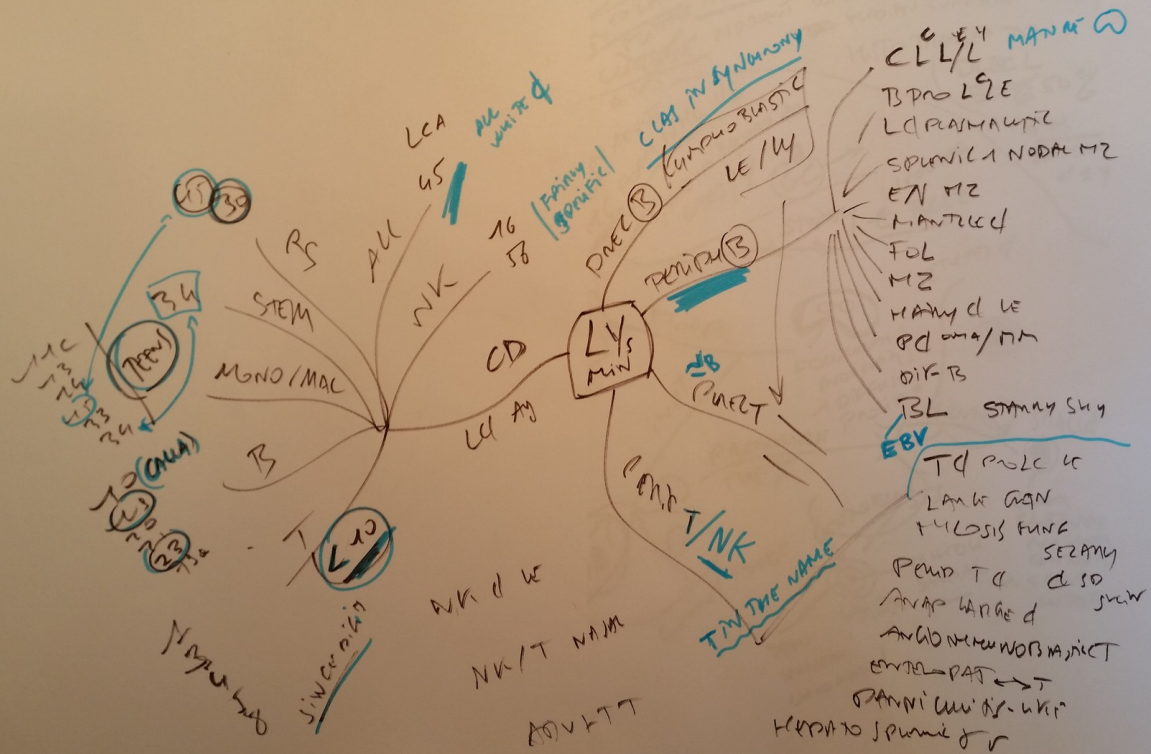
LYMPHOMAS MAJARIK

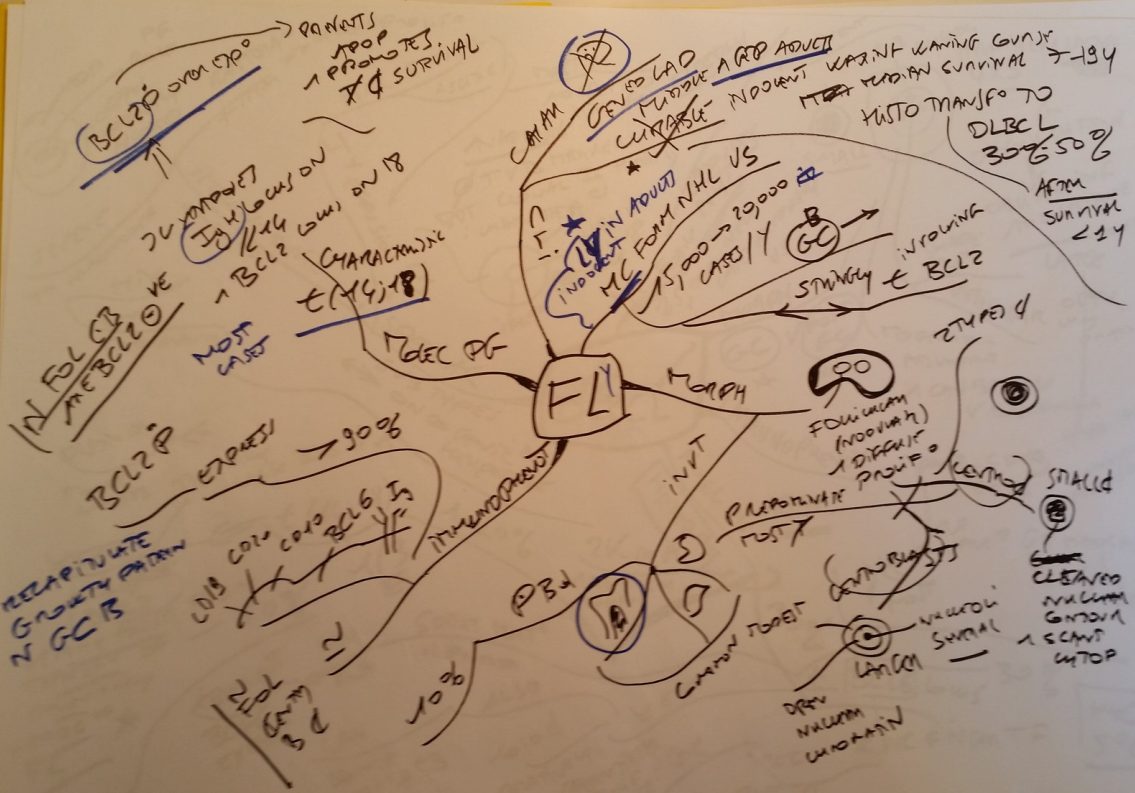




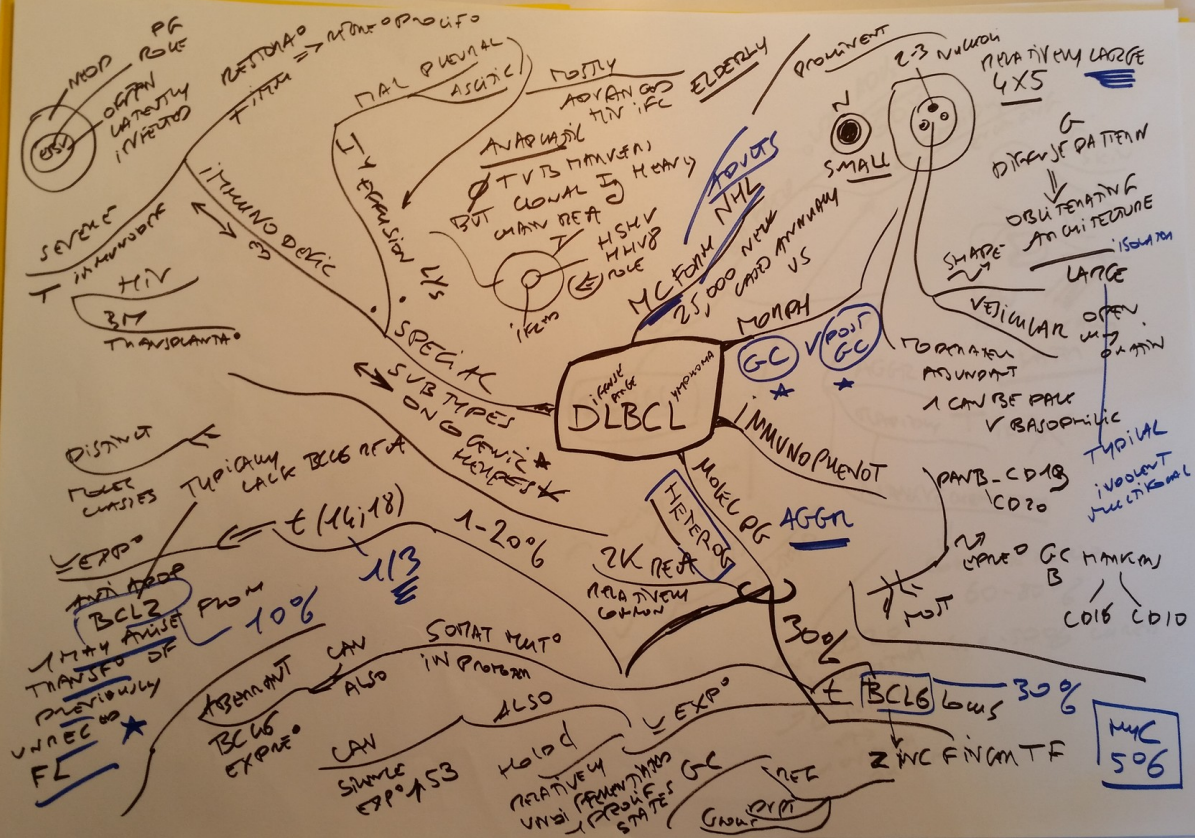




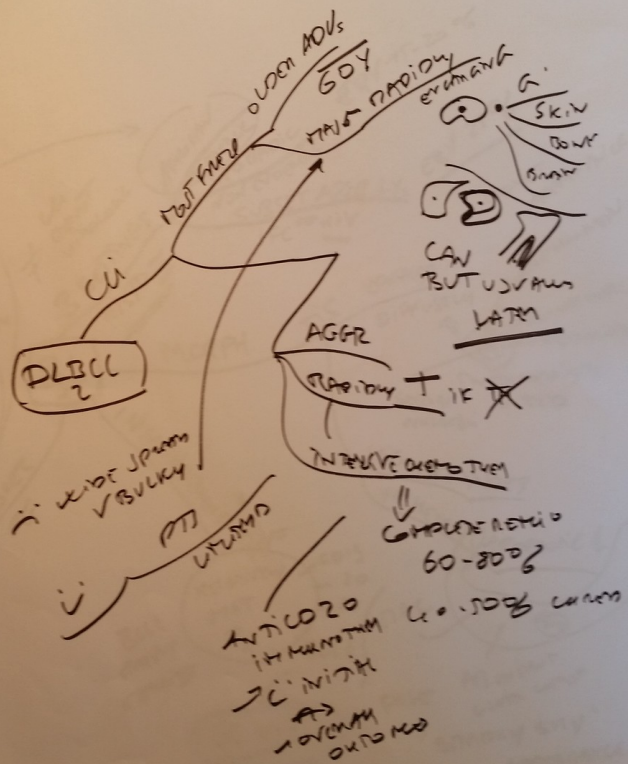


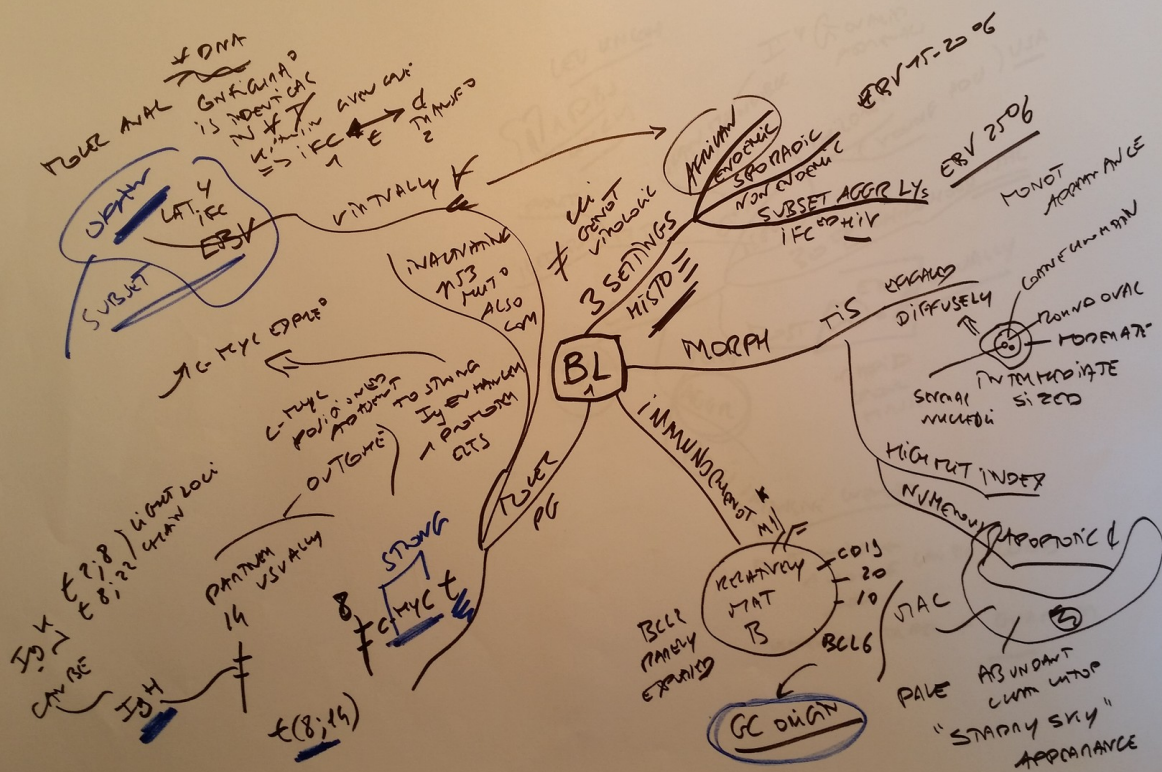














LEV UNOM  
MADBS  
UNOM

PONT  
ILEOCEAL ITO

OPEN MANOIR  
IY FORMED  
MORPHAL

CHILDREN  
(YOUNG ADU) USA

30% CHILDHOOD NHL

CLi  
TSC 2

VERY  
AGGR

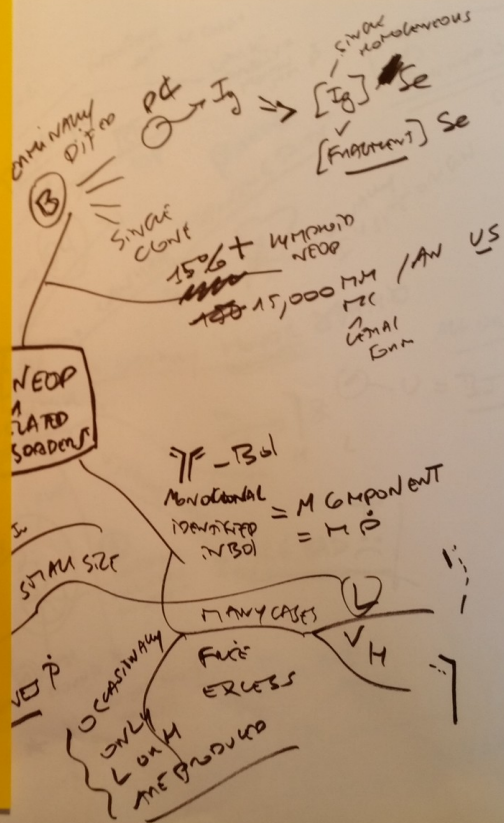
→ U INTENSIVE WASH

EV  
RAPID  
GROW  
TH

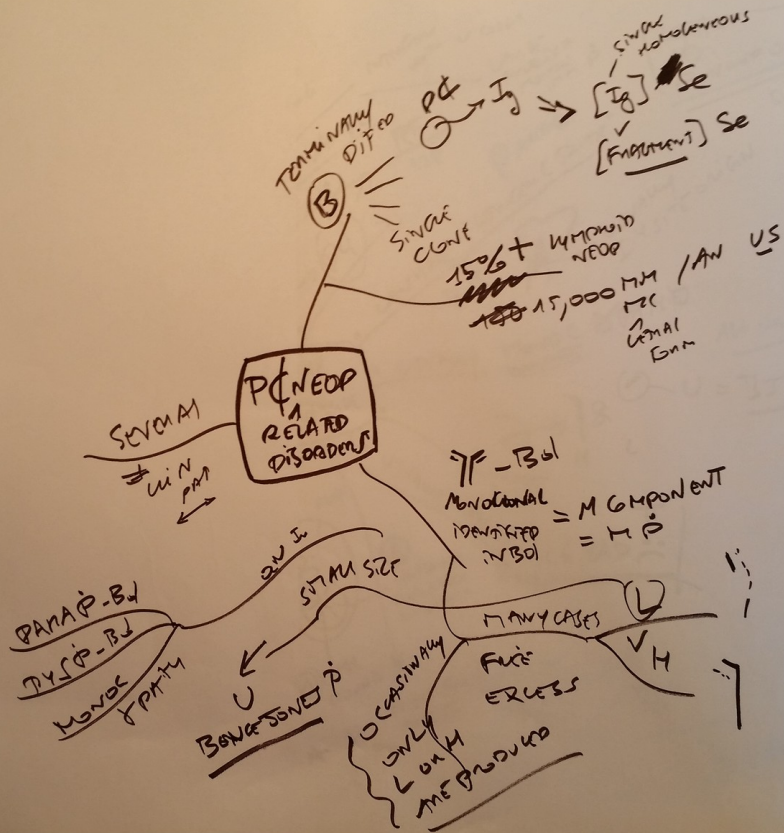
USUALLY

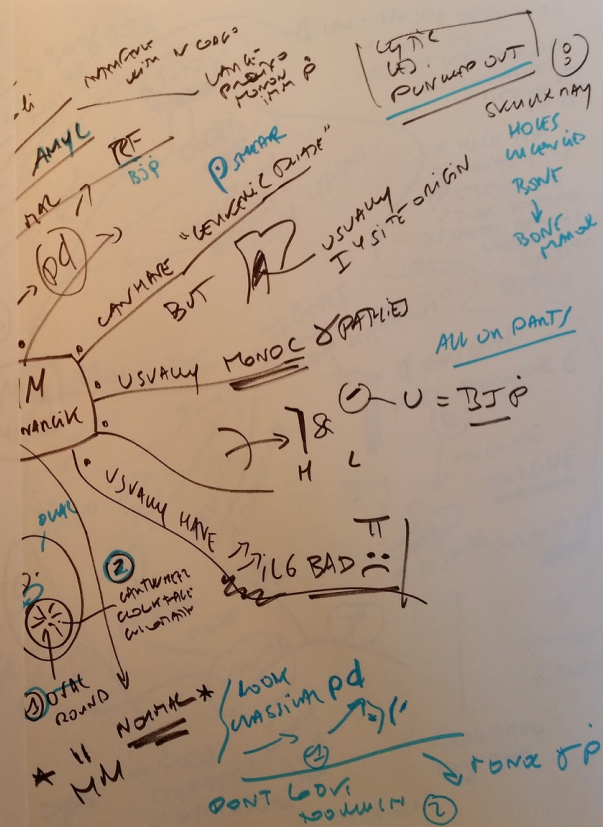
most children  
+ young can be cured  
+  
when older + GROW

PC 1 RELATED



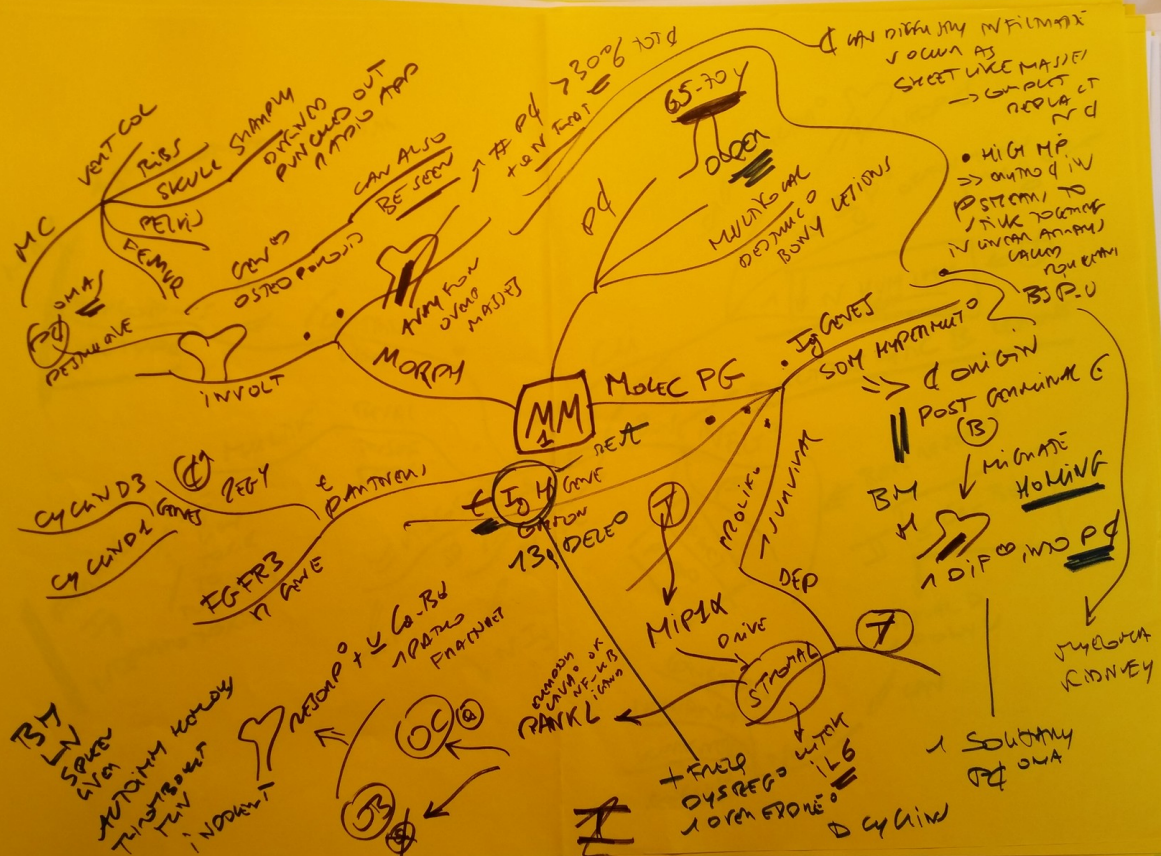












MAY ASHLEY OTHER MOPHOL

AMYLOIDOSIS  
AL TYPE

PARV  
CONTAINS  
WHT

MULTIC  
PROVAL  
INSIDE  
SOO6

PANAL  
Ig  
NEPHRO TOXIC  
TO  
TOXICITY

↓ VISCOSITY  
SO REC  
B IFC  
↓ N Ig

MM  
2

Cli

BONE INFIL<sup>o</sup>

FRAC  
PADO

CONSTIP  
LETARGY  
WEAKNESS  
CONFUSION

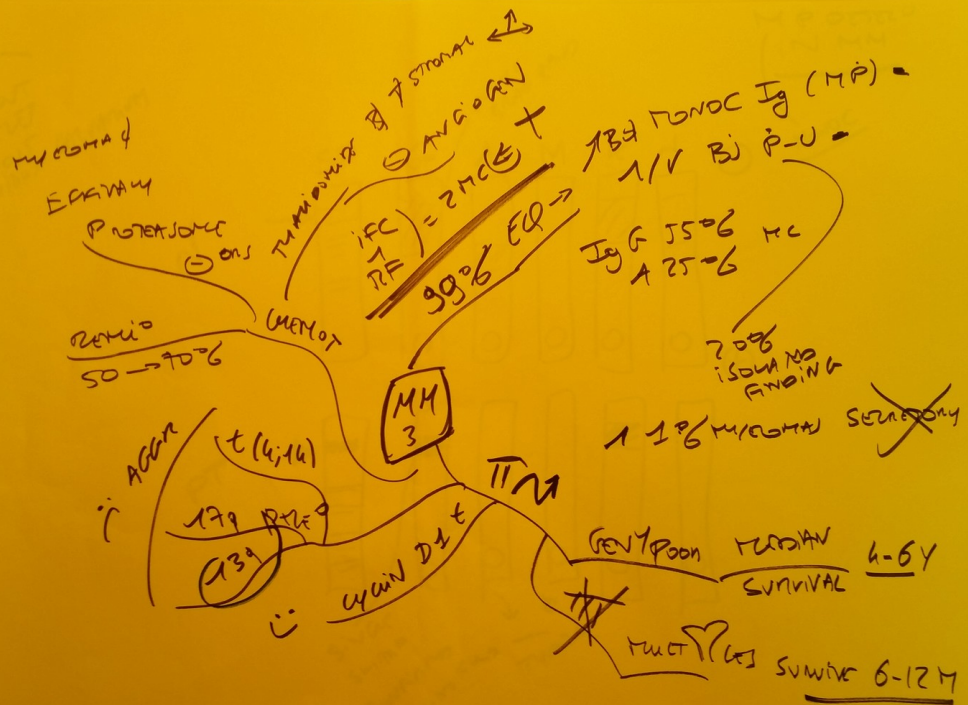
PLASMA CELL LESIONS

BONE RESORP<sup>o</sup>  
Ca-Bd

RENAL D  
POLYU  
CAN

ONE INACT<sup>o</sup> NEOPC  
Ig P<sup>o</sup> OSM + ON  
P<sup>o</sup> P<sup>o</sup> P<sup>o</sup>

↓ N HUM IMM





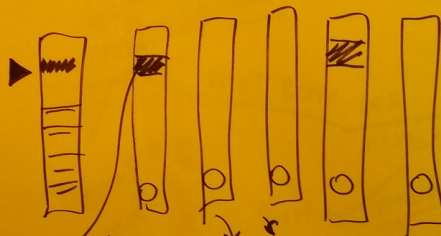
SHARP  
PINK-OUT  
BOWEN  
NOT  
OBVIOUS GALVANISM

N



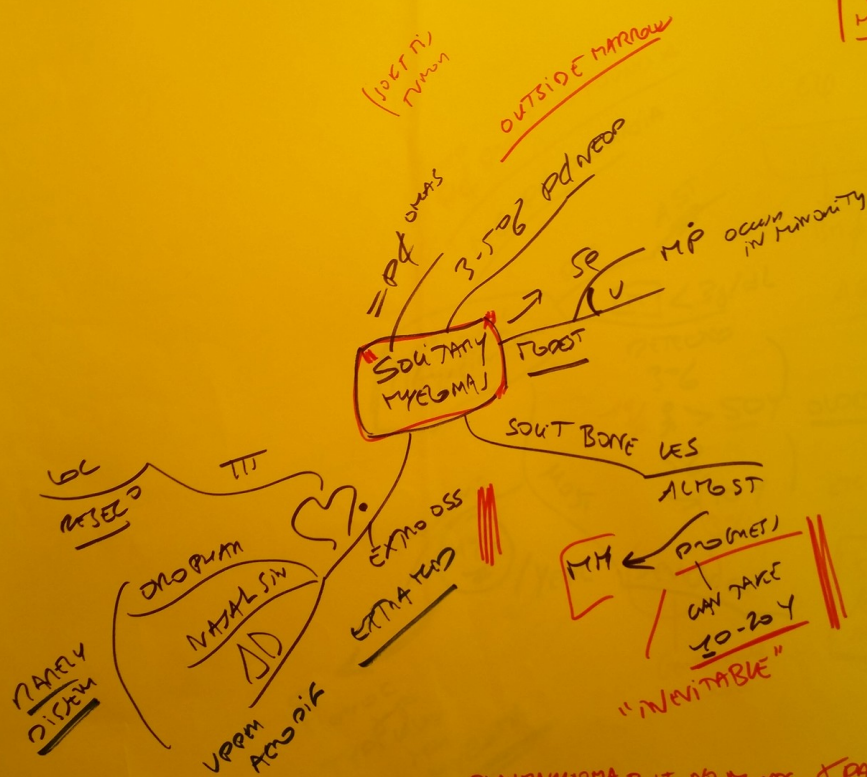
M P O S S O  
2 MM  
MONOC

PT

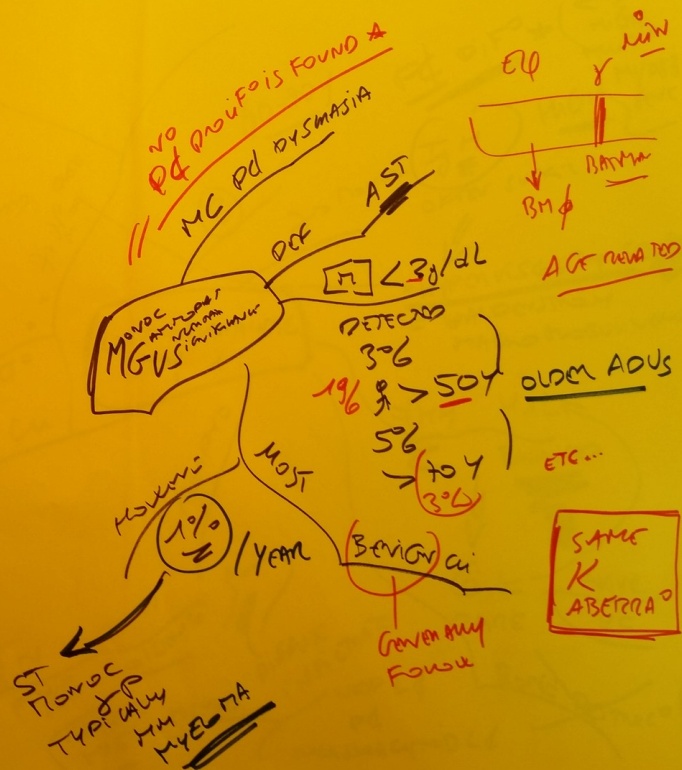


TYRONE

Minarik

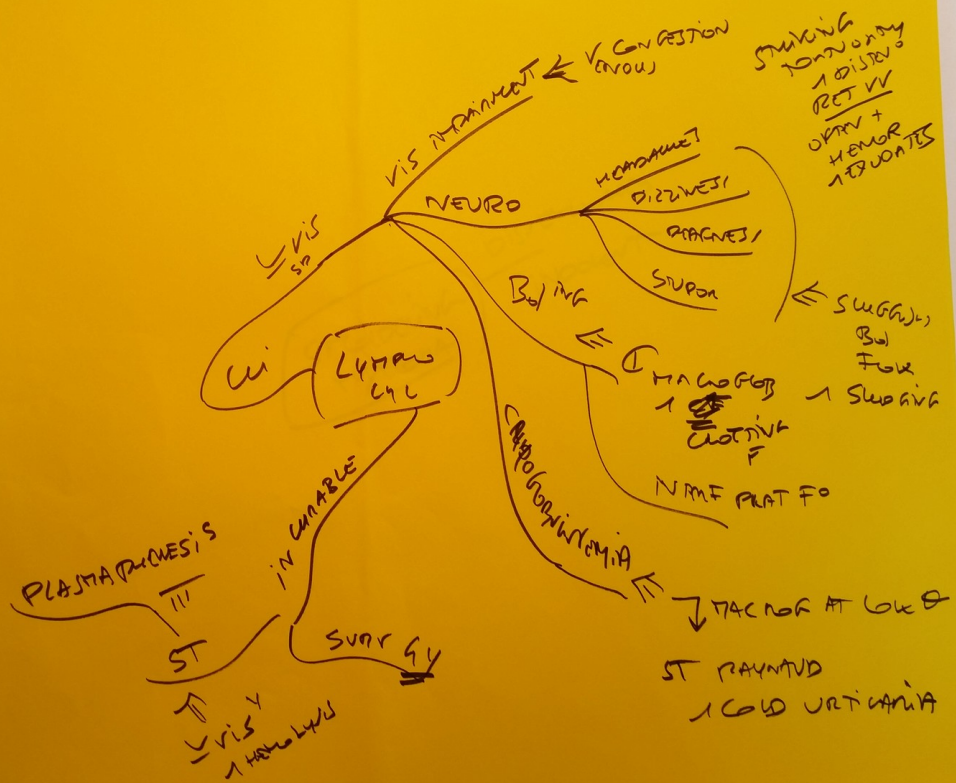


DIAGNOSTIC BUT NO REMOVAL OF PATHY?









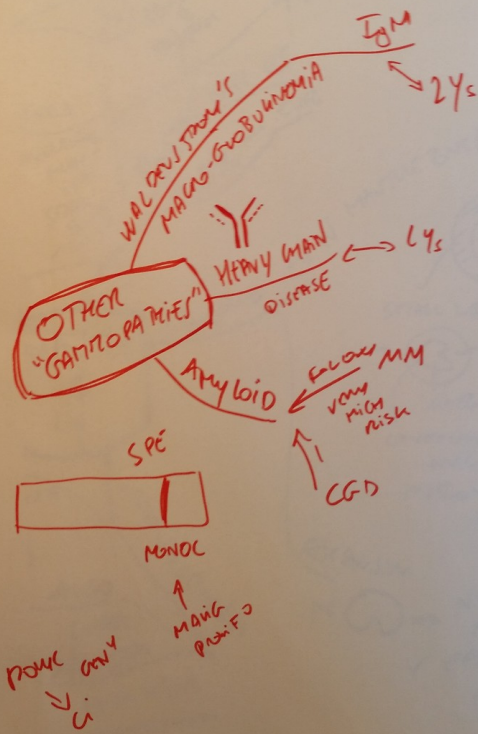
Straining  
Hydrolysis

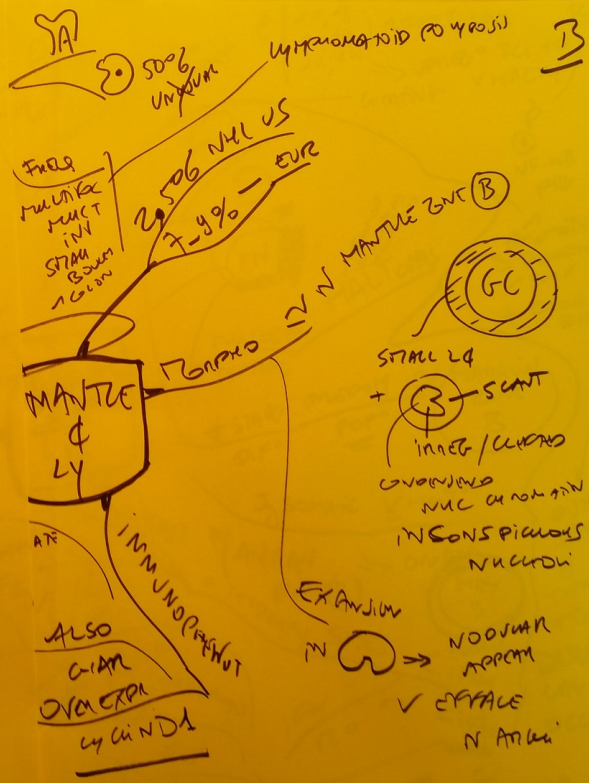
Displacement  
Indolent



no more 8P  
10-204 → 174  
INV

(Sout  
Pd 2mm)



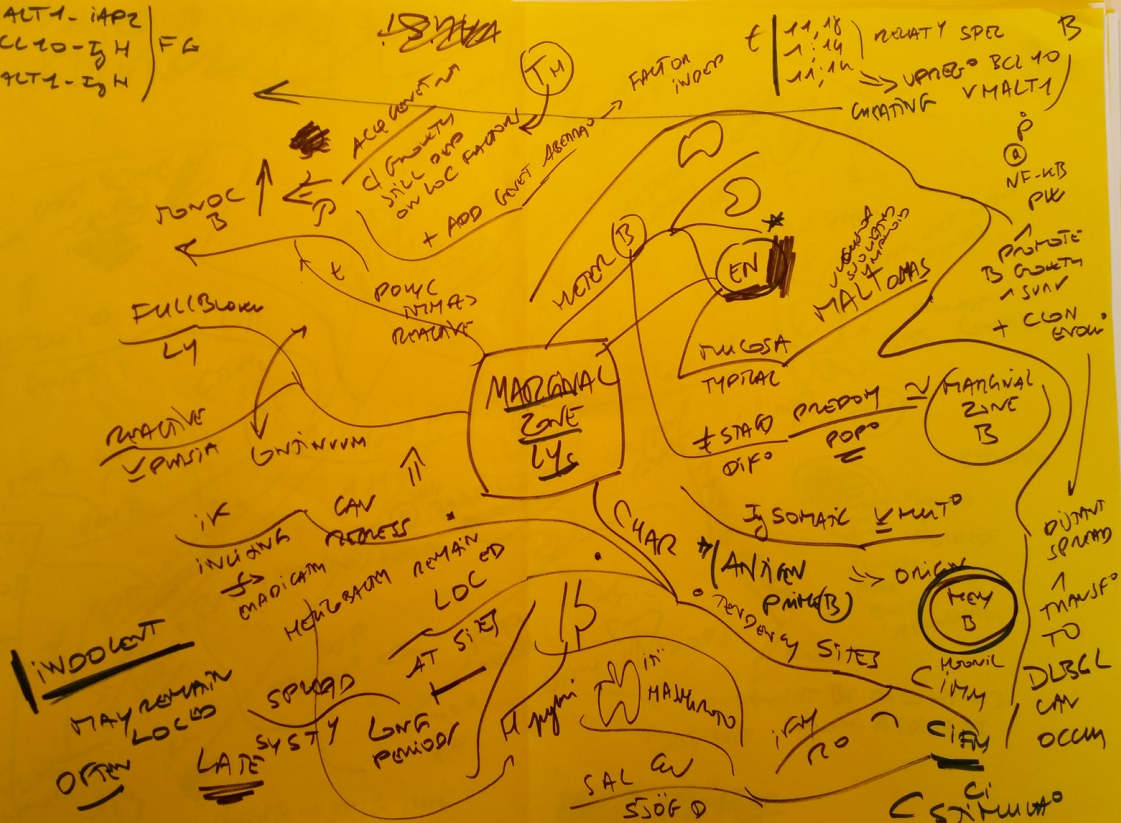


UNCOMMON & NEOP





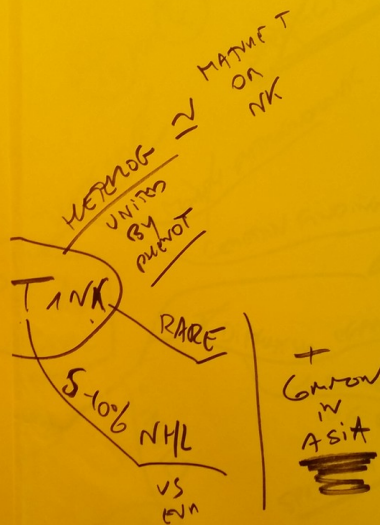
1874







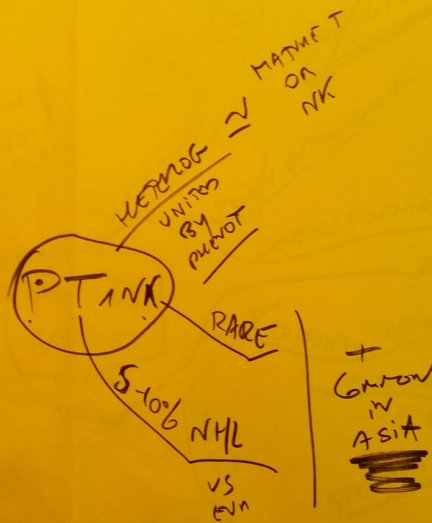




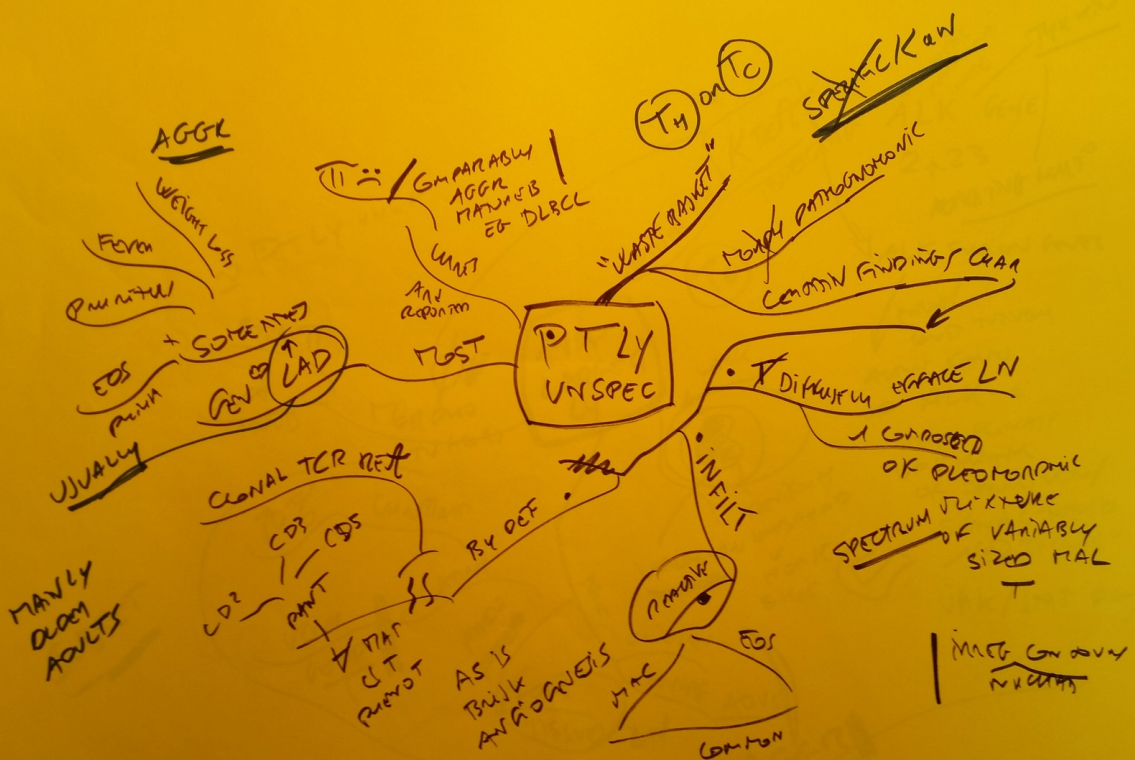
PERIPHERAL NK/T LY/LE  
~~PERIPHERAL~~

FAIRE

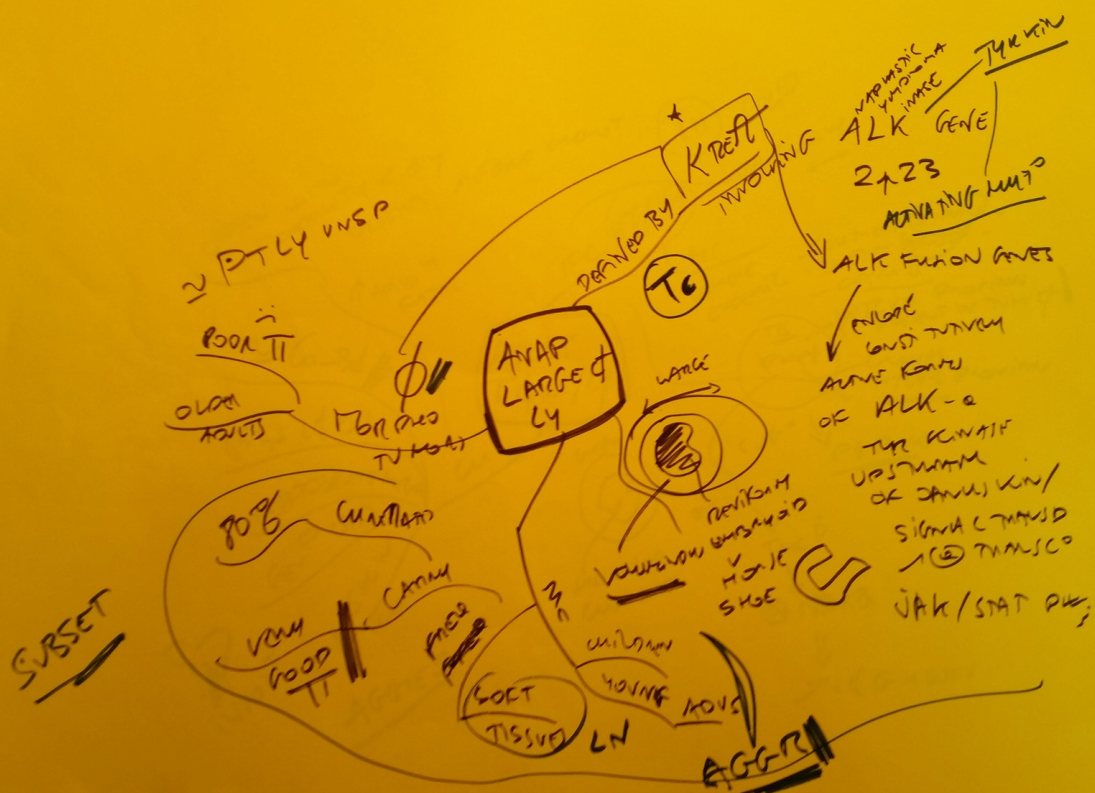
Approximate



FAIRE





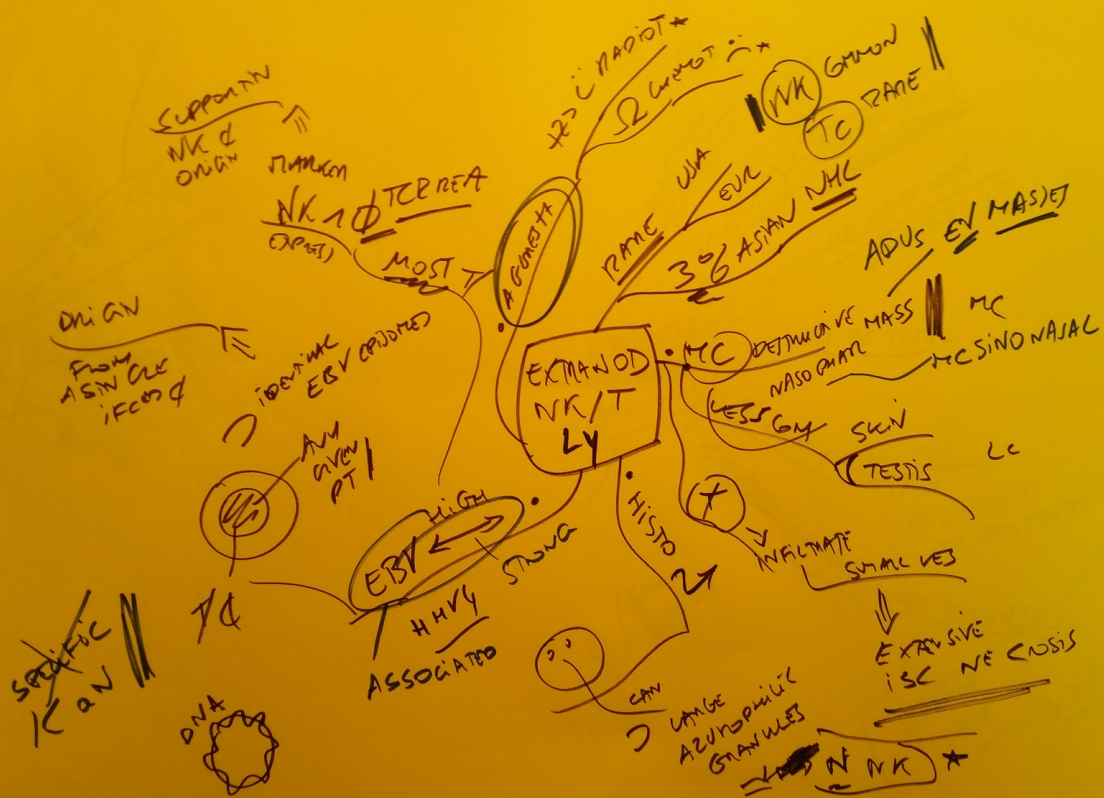


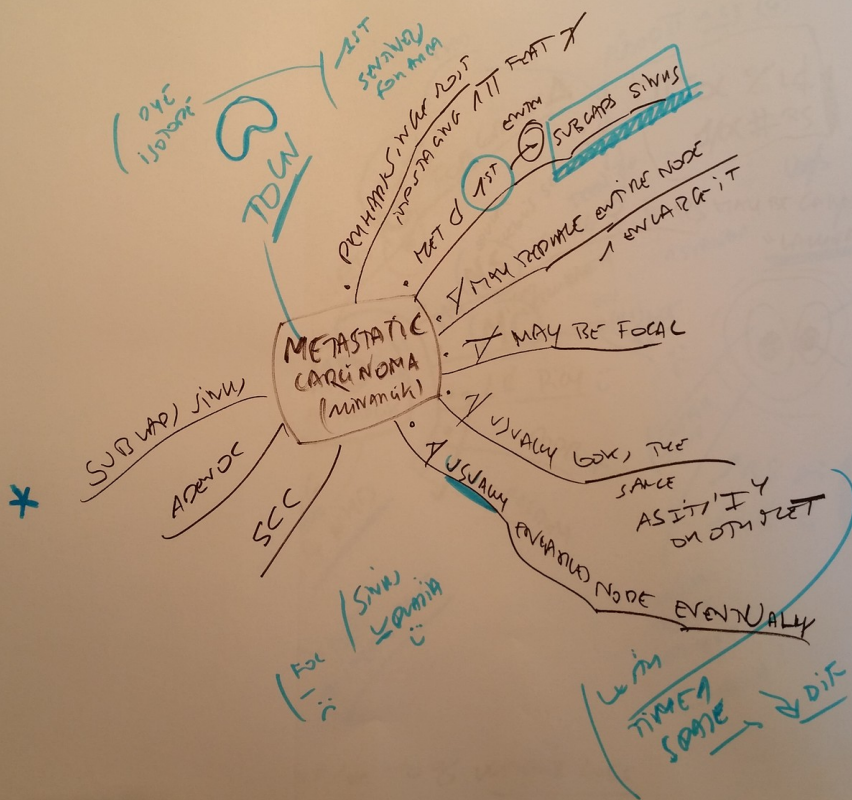








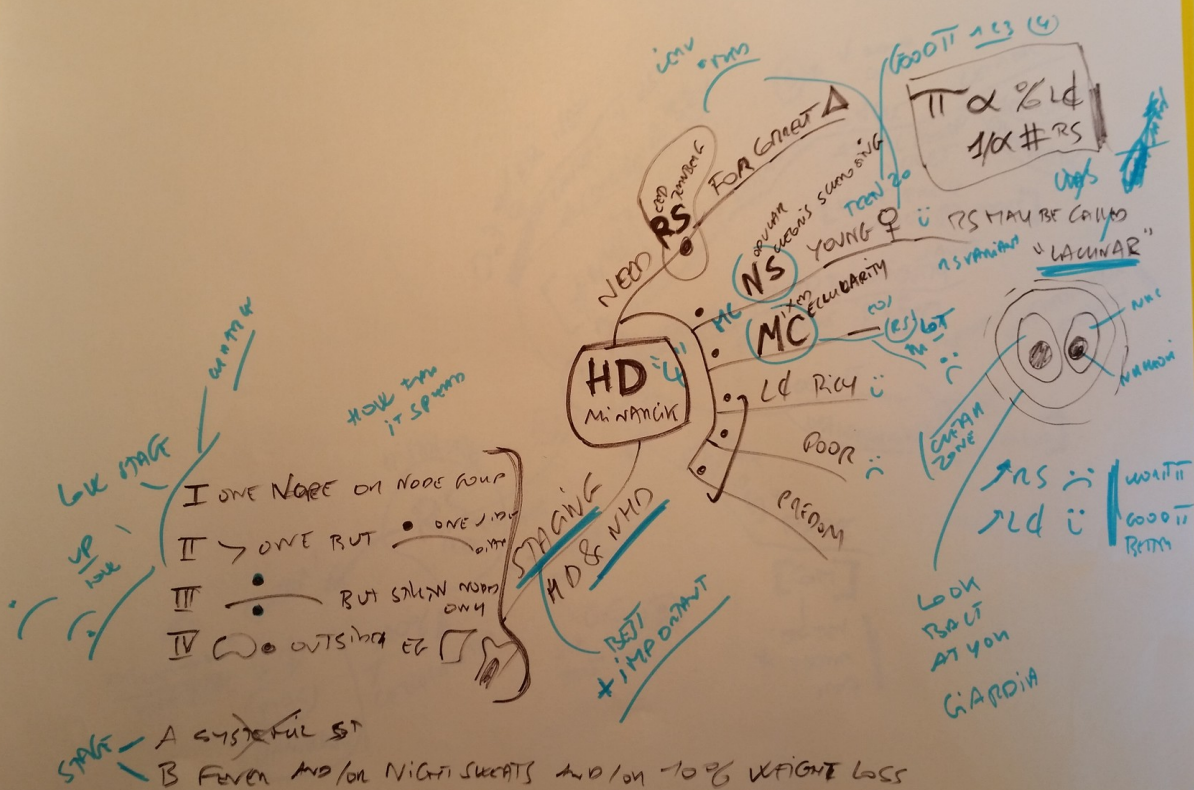


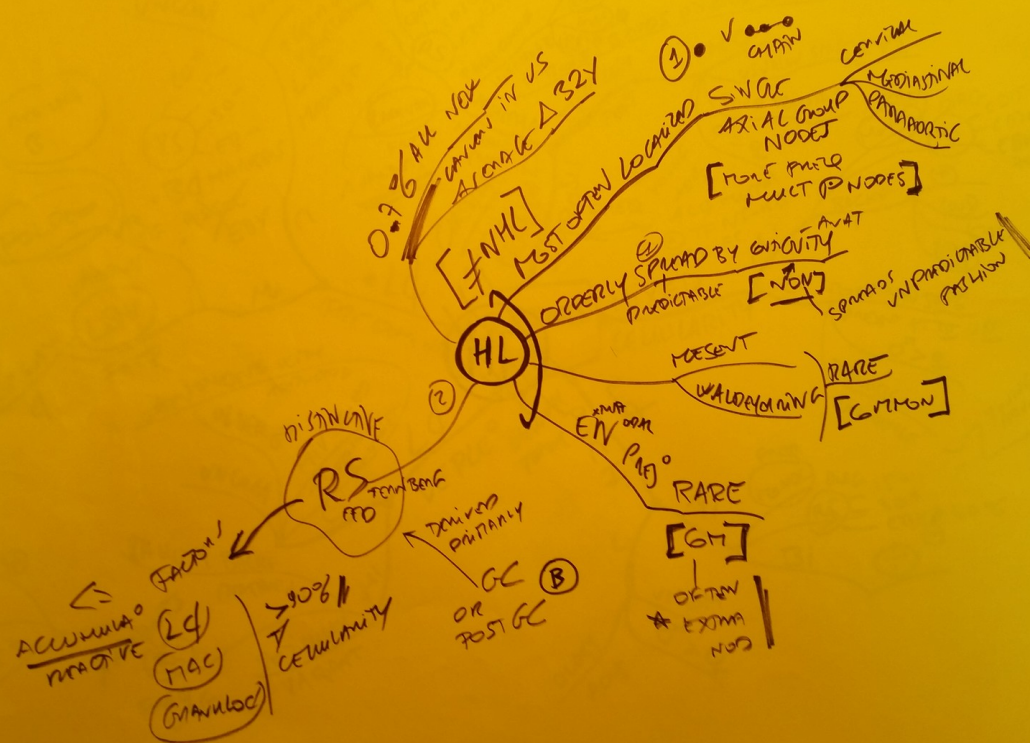




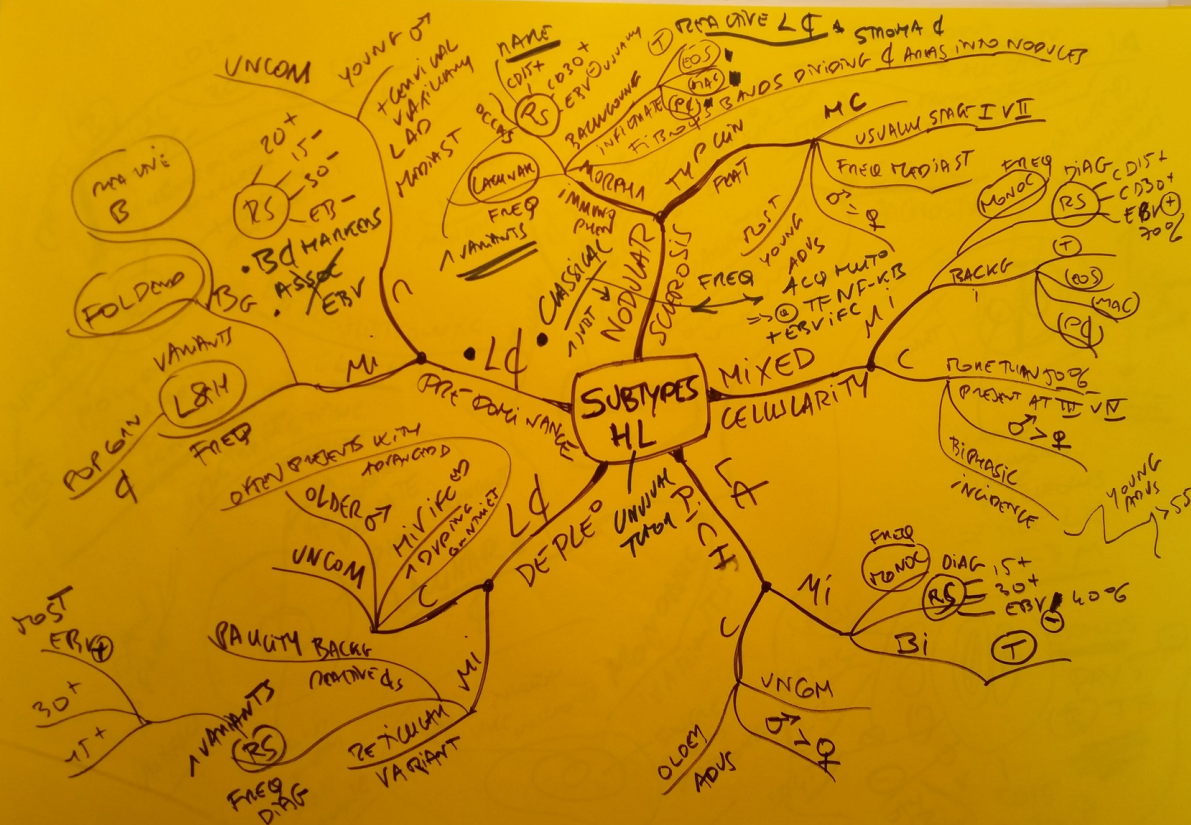
[illegible]

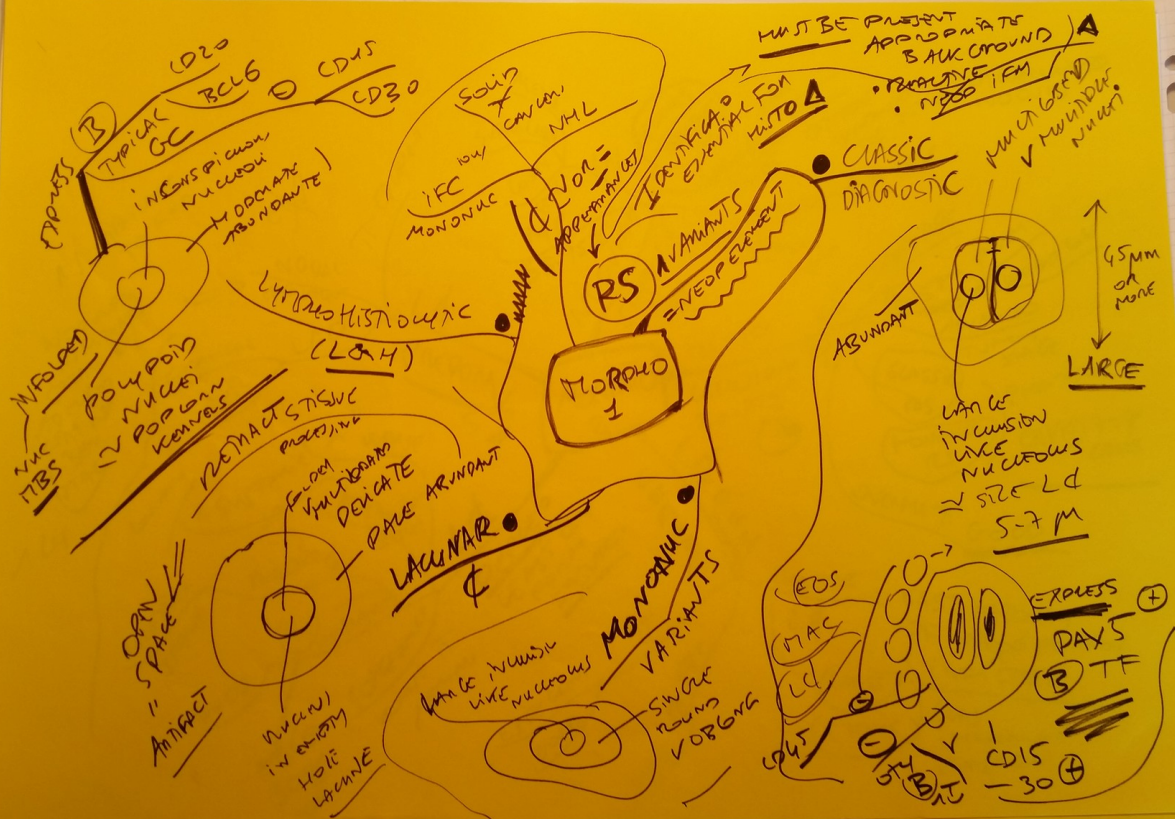
0/04 10% WEIGHT LOSS



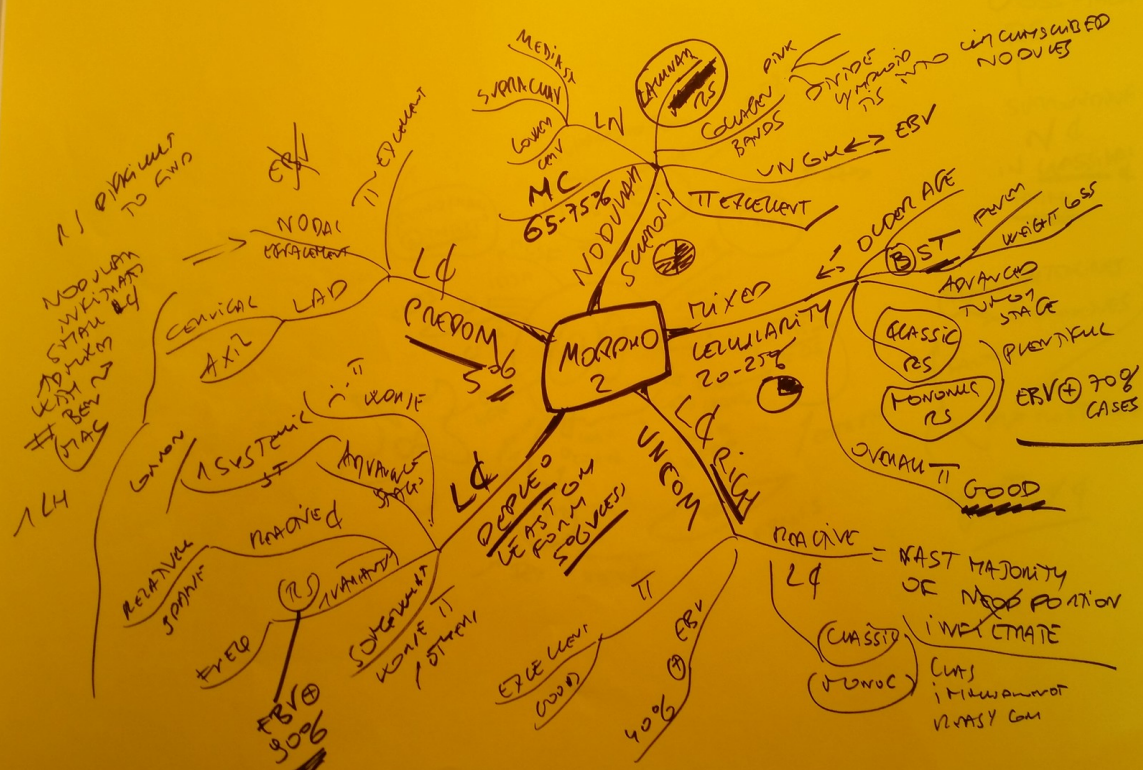






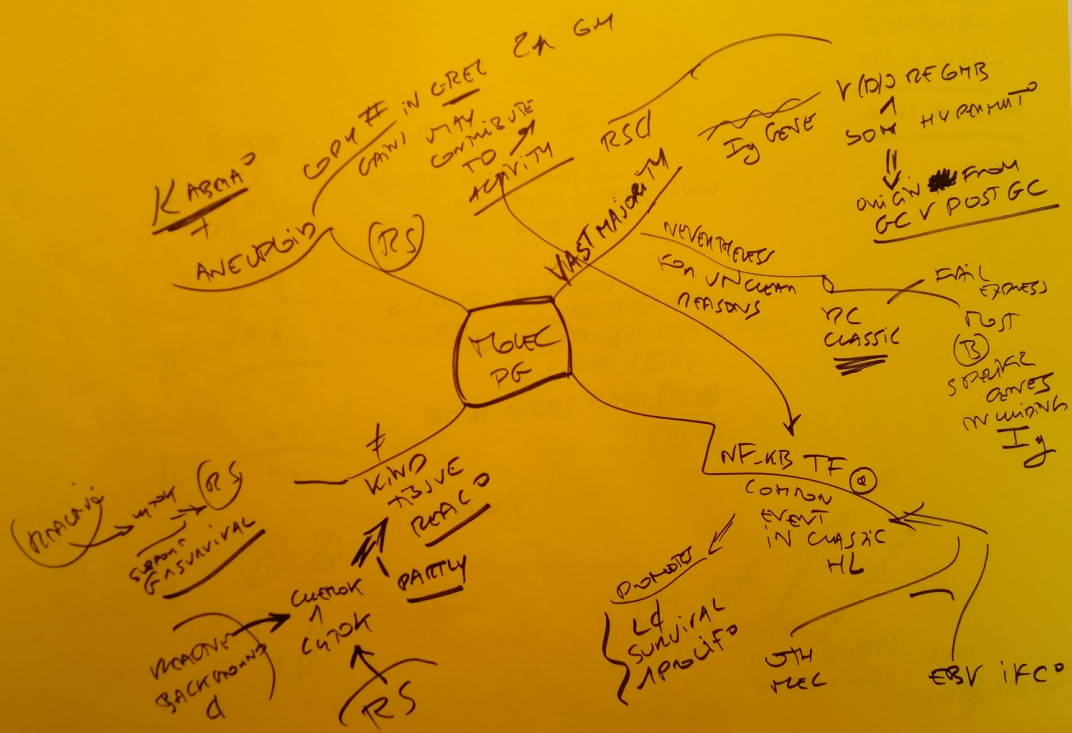




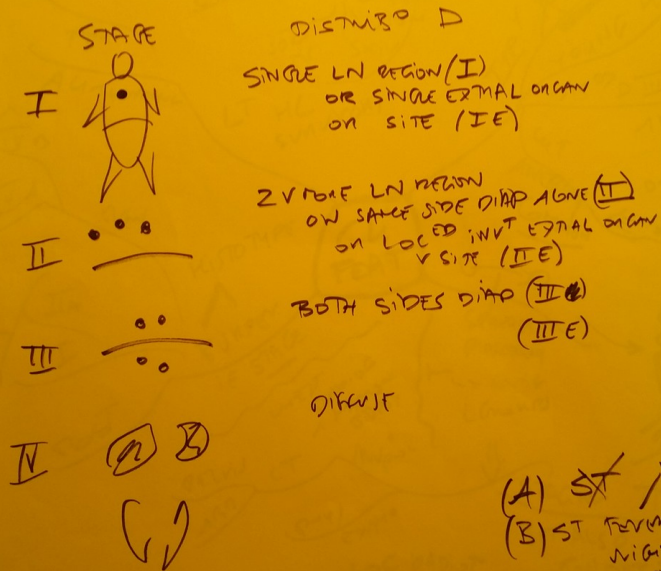








Clinical  
Staging  
HLA NHL  
Ann Arbor



DISTURB D  
SINGLE LN REGION (I)  
OR SINGLE EXTERNAL ORGAN  
ON SITE (IE)

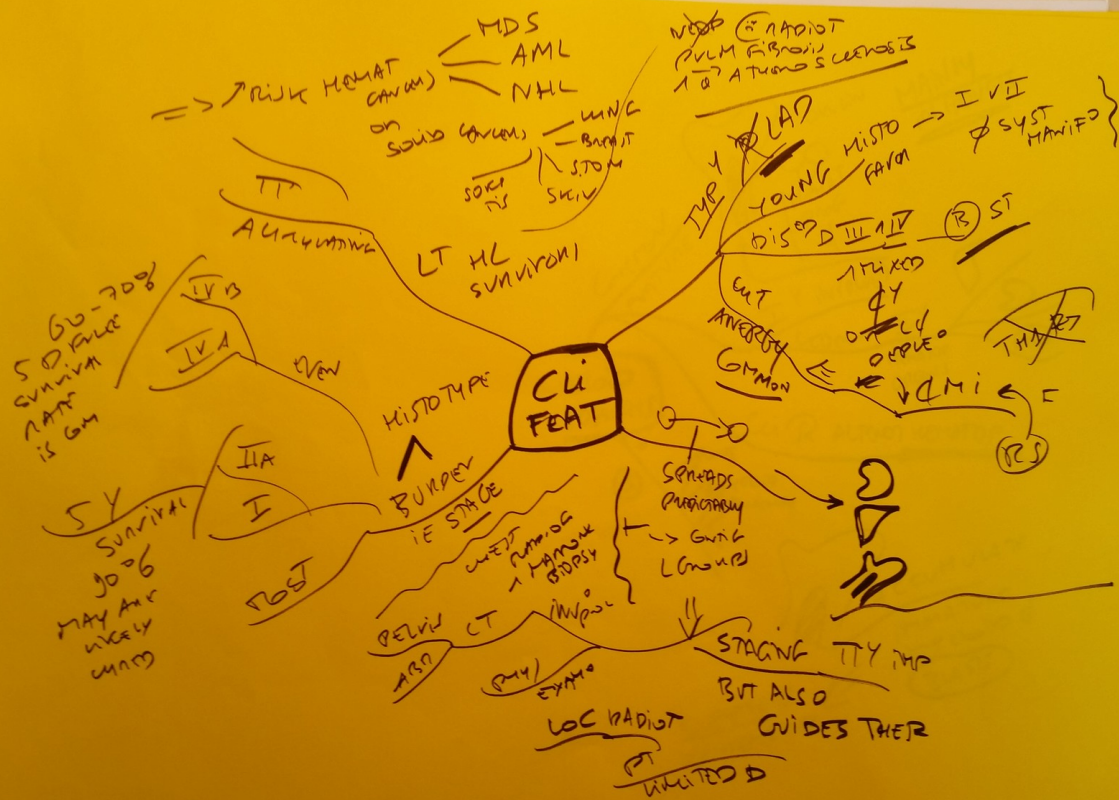
2 V MORE LN REGION  
ON SAME SIDE DIAP ALONE (II)  
ON LOC ED INT EXTERNAL ORGAN  
V SITE (II E)

BOTH SIDES DIAP (III)  
(III E)

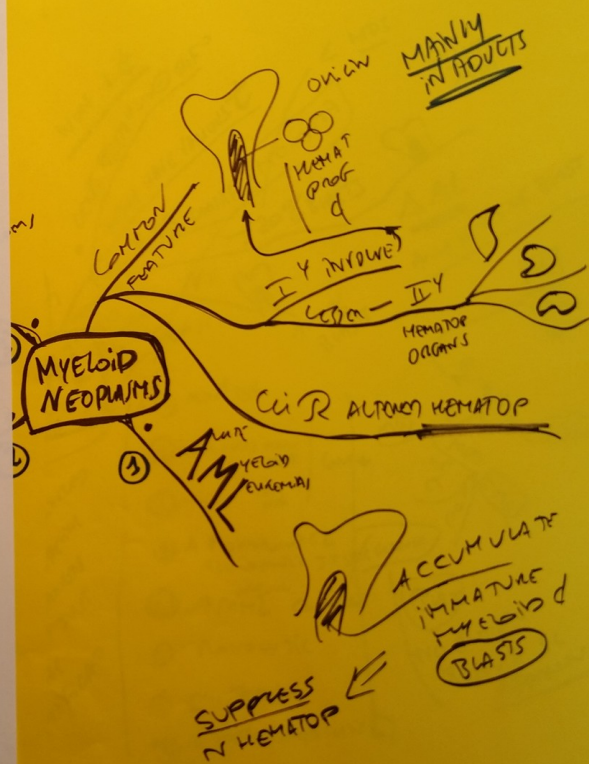
DIFFUSE

(A) ~~ST~~ UNEXPLAINED  
(B) ST FEVER  
NIGHT SWEATS  
WEIGHT LOSS  
V1/1  
>10% NB 4





MYELOID



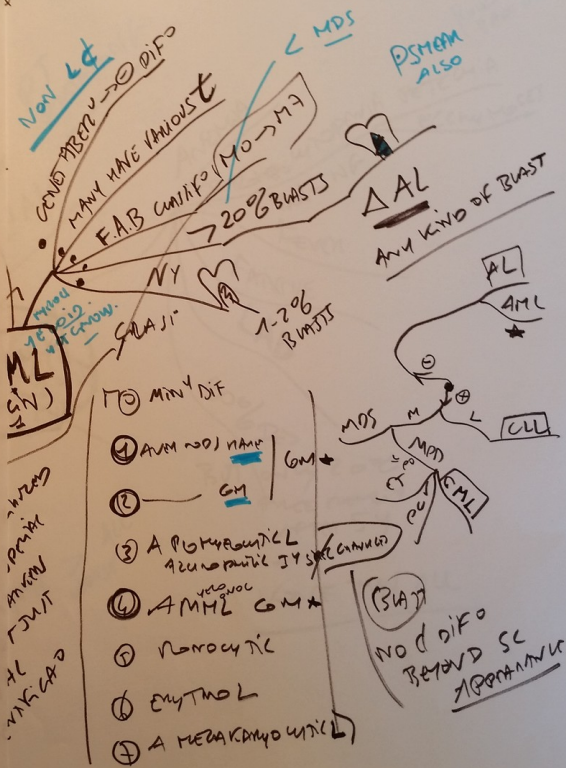




NHL  
MF Tumor Nodes

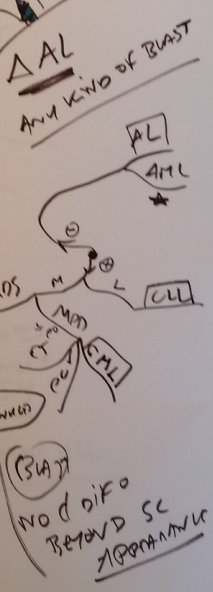
CLL  
GM  
GM

AML  
w/ r  
ye  
EV





- 100% M1 DIF**
- ① AML M1 M1 M1
  - ② AML M2 M2 M2
  - ③ AML M3 M3 M3
  - ④ AML M4 M4 M4
  - ⑤ AML M5 M5 M5
  - ⑥ AML M6 M6 M6
  - ⑦ AML M7 M7 M7



PT  
presenting

CLINICAL

AML  
2nd  
most  
common

AML > ALL  
worse

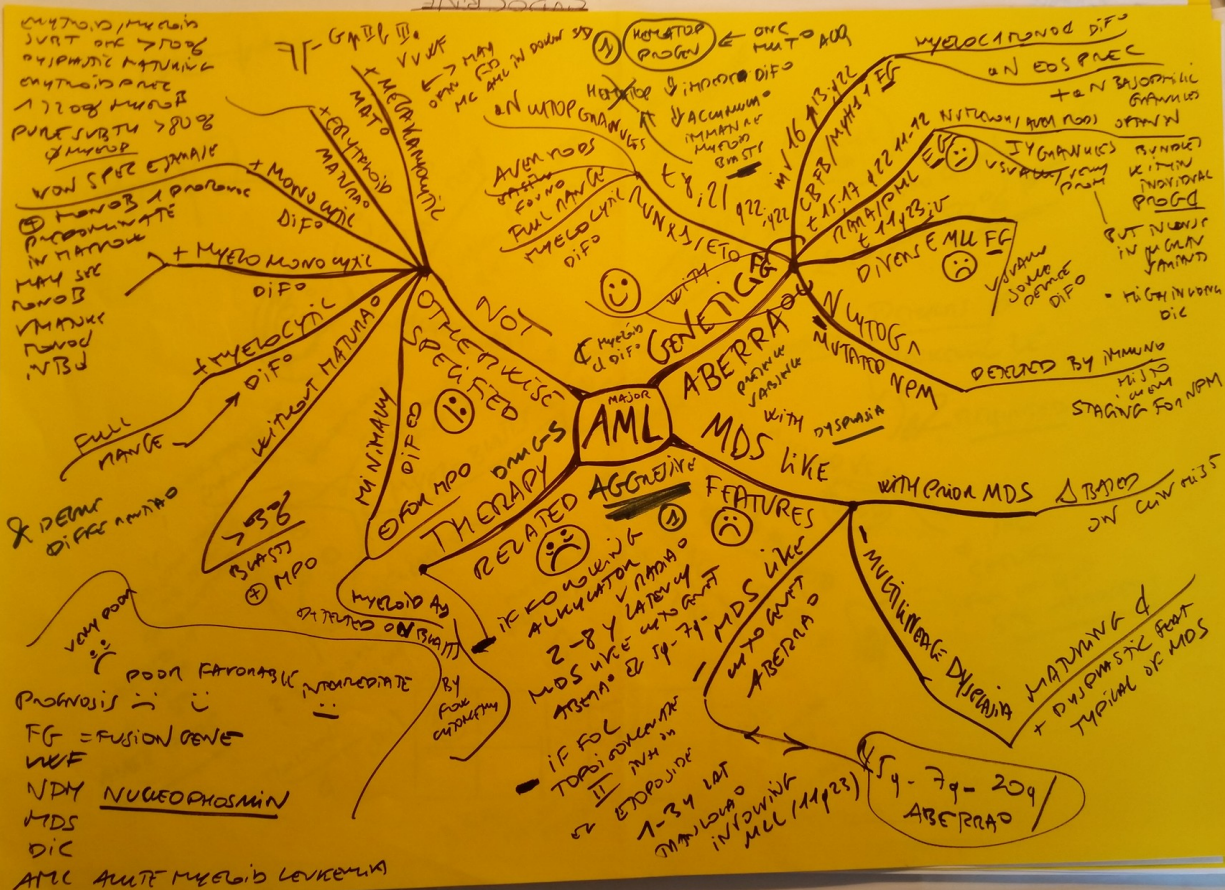
low  $\checkmark$   
BAD PMT

ANEMIA  
THROMBOCYTOPENIA  
Bleeding  
Fever  
FATIGUE  
LAD  
60%  
60%  
BUT only 20%  
FREE remission  
AFM 54  
Worse than ALL

PETECCHIA  
ECCHYMOSIS

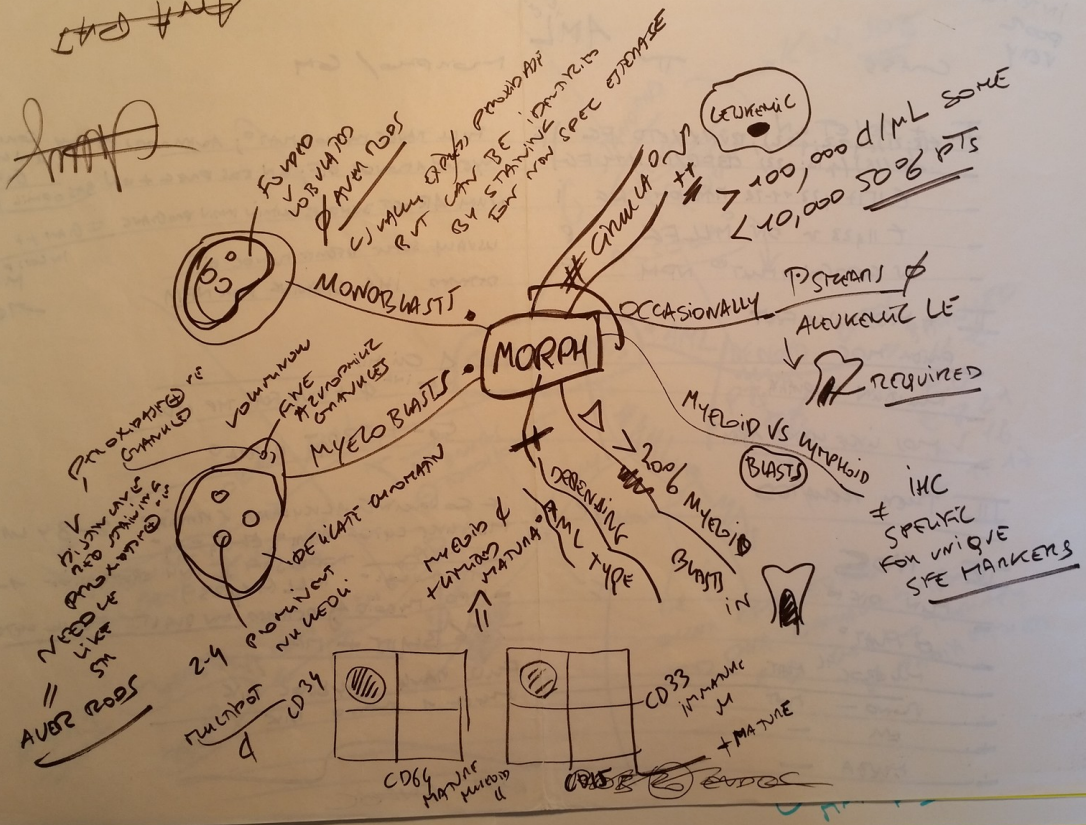
AML Acute Myeloid Leukemia





~~Am # PAT~~

~~ADOC RINE~~



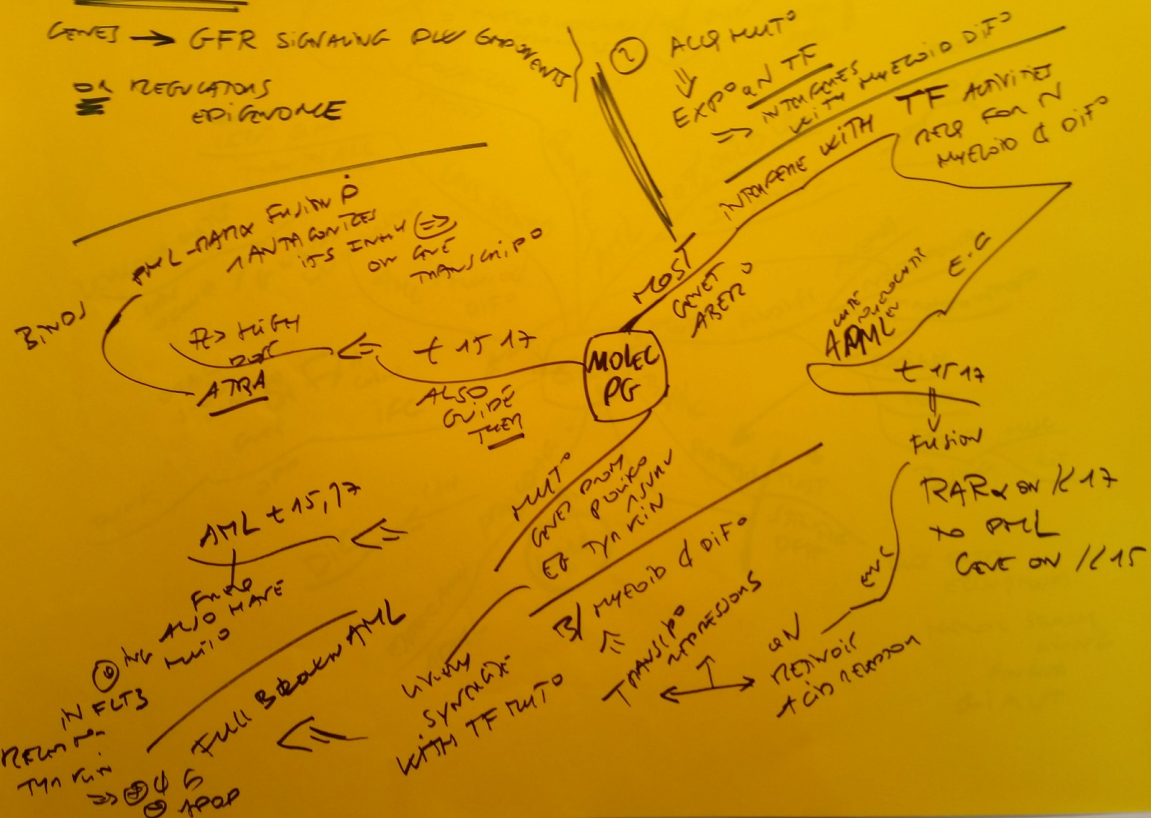


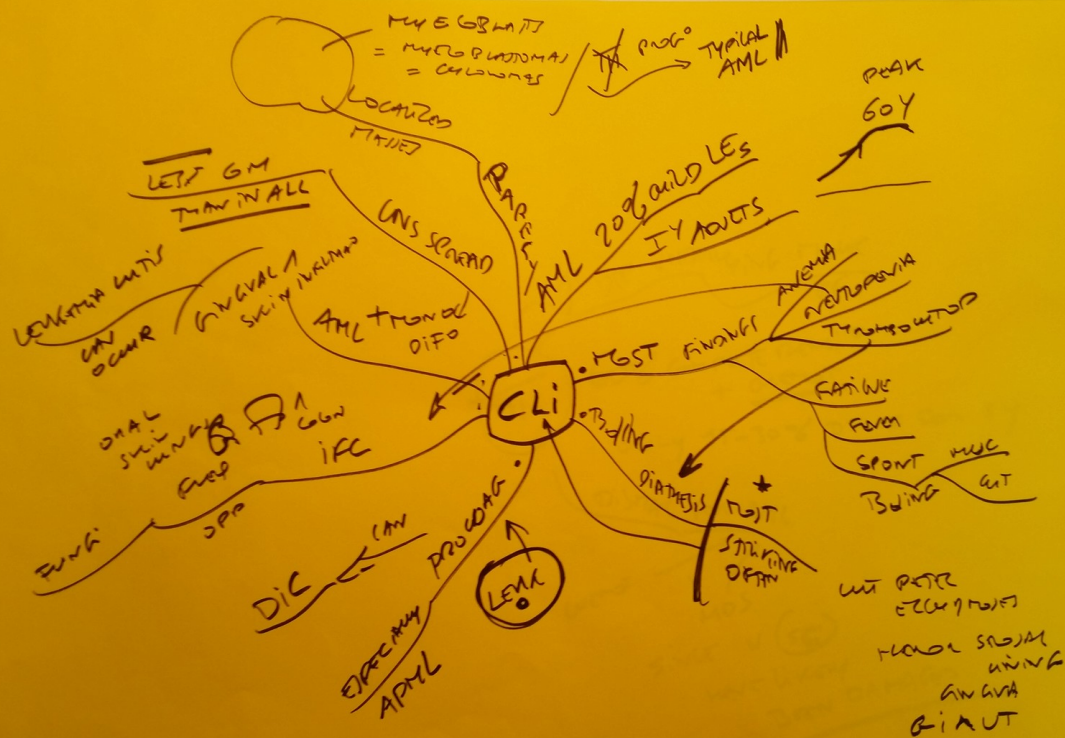


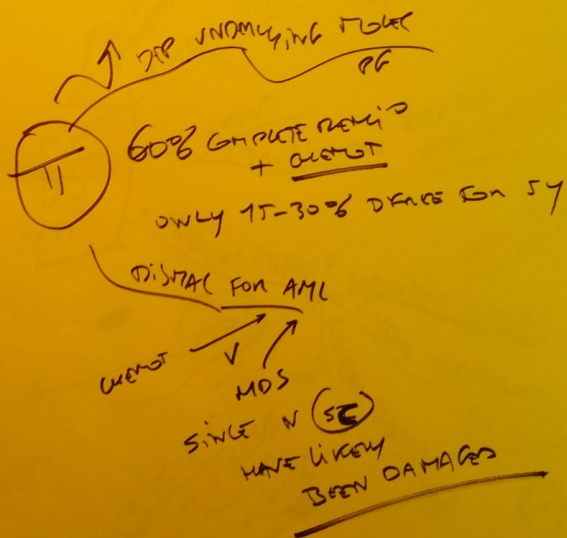


③ OFTEN ALSO  $\leftrightarrow$  MUTO

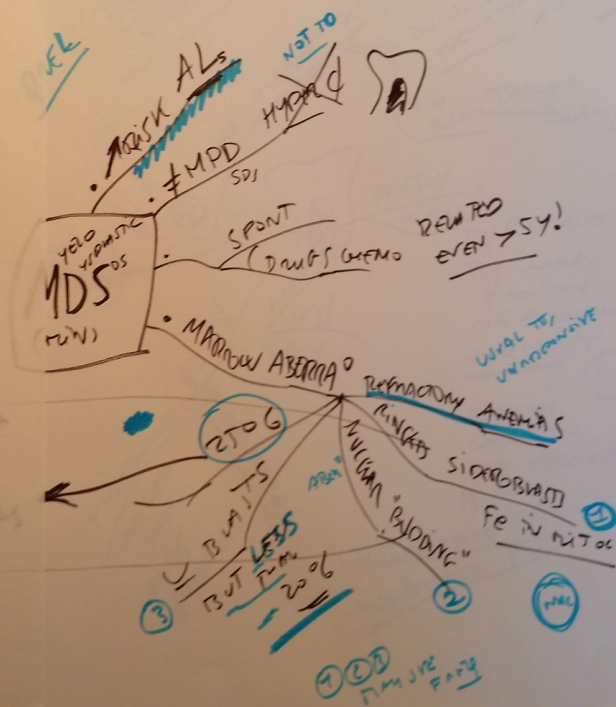
GENES  $\rightarrow$  GFR SIGNALING AND GRADIENTS  
OR REGULATIONS  
EDUCATION

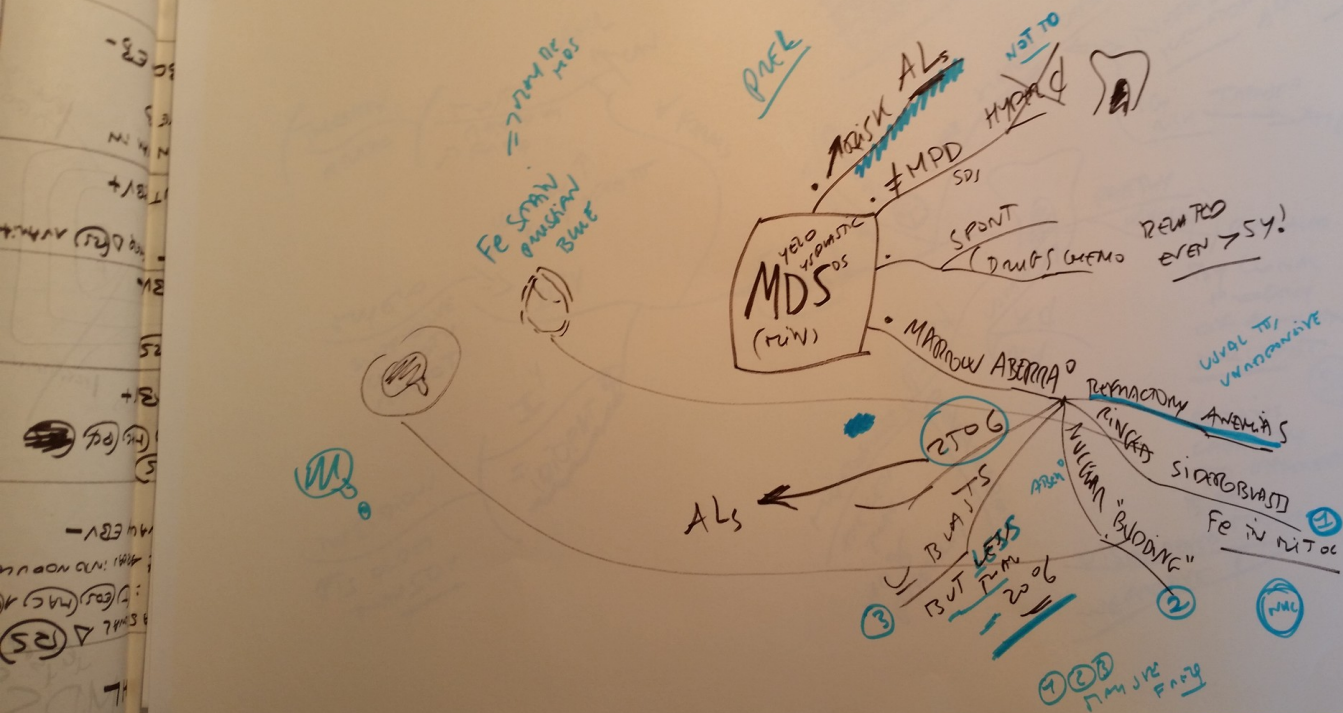


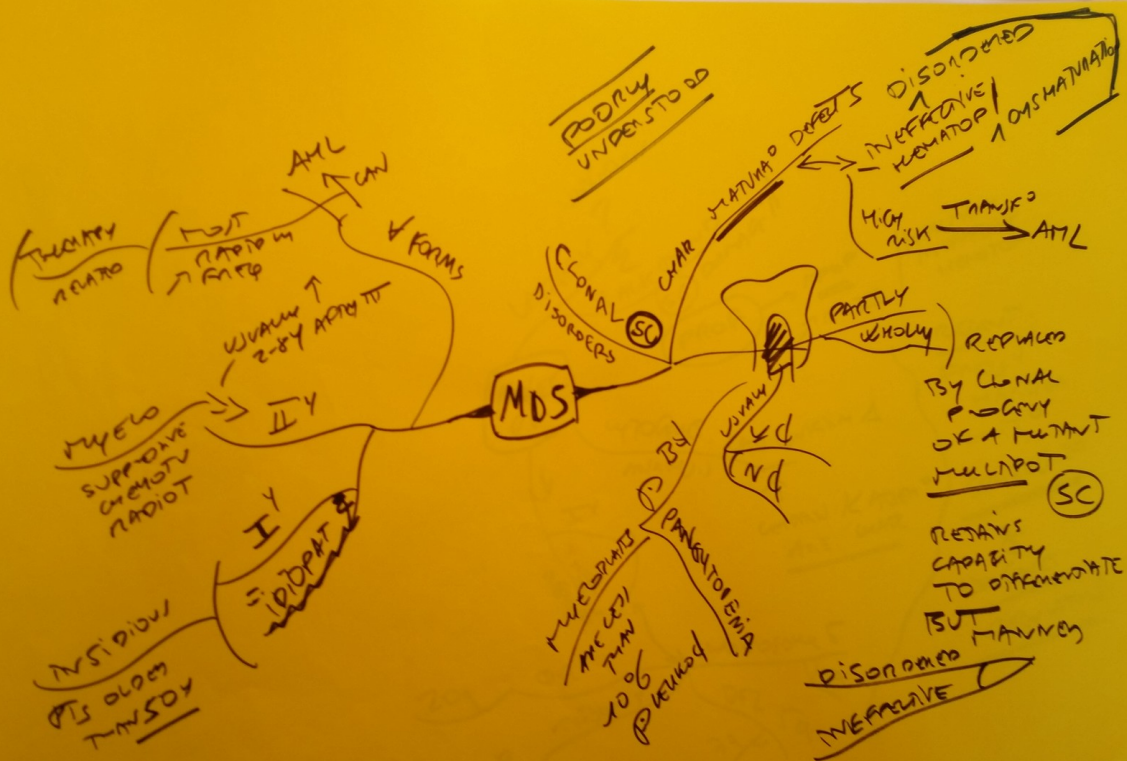




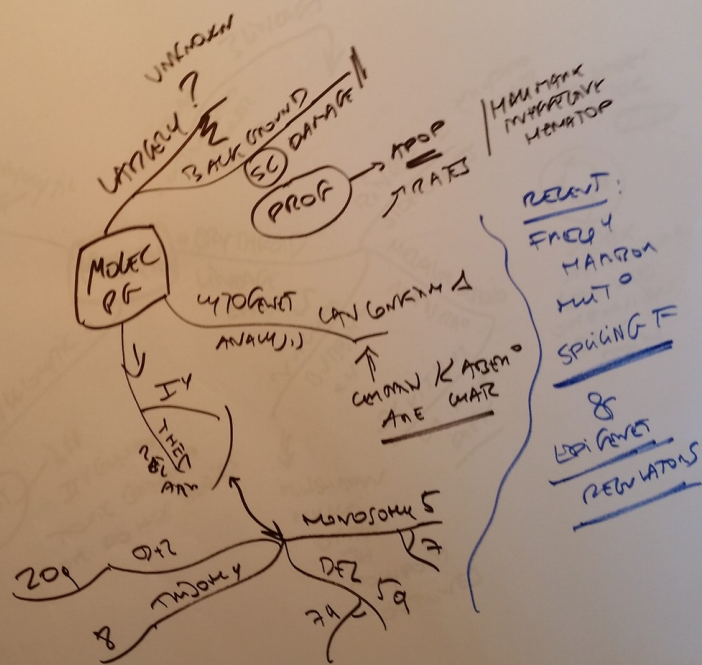


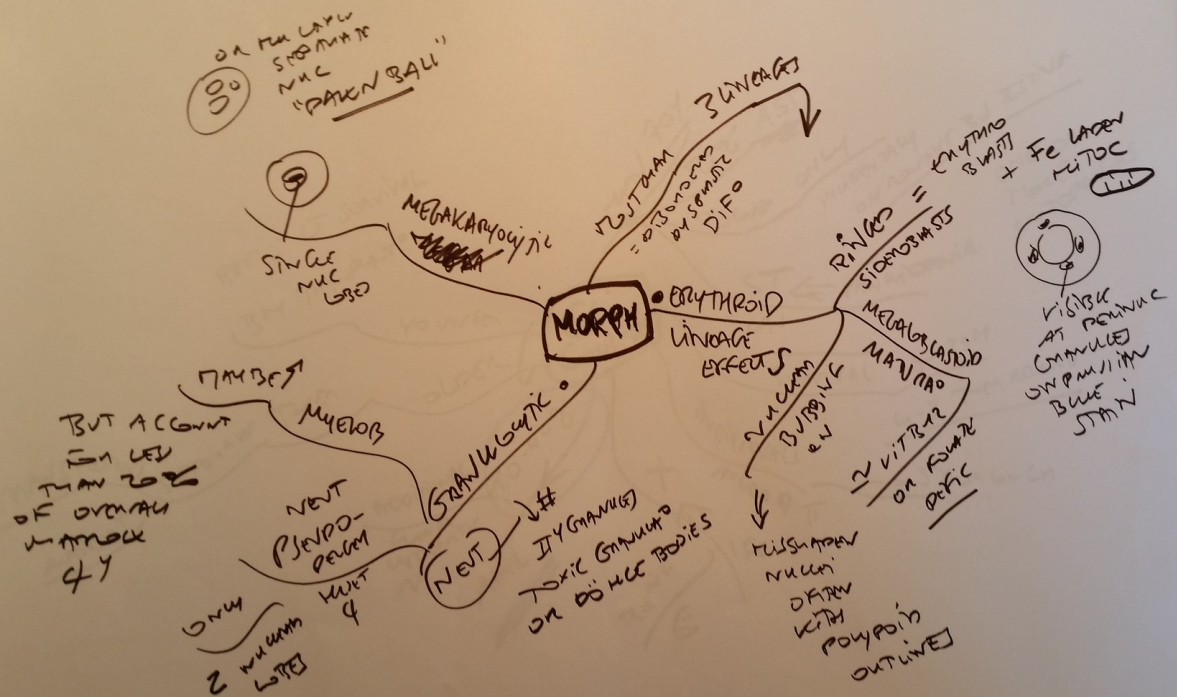


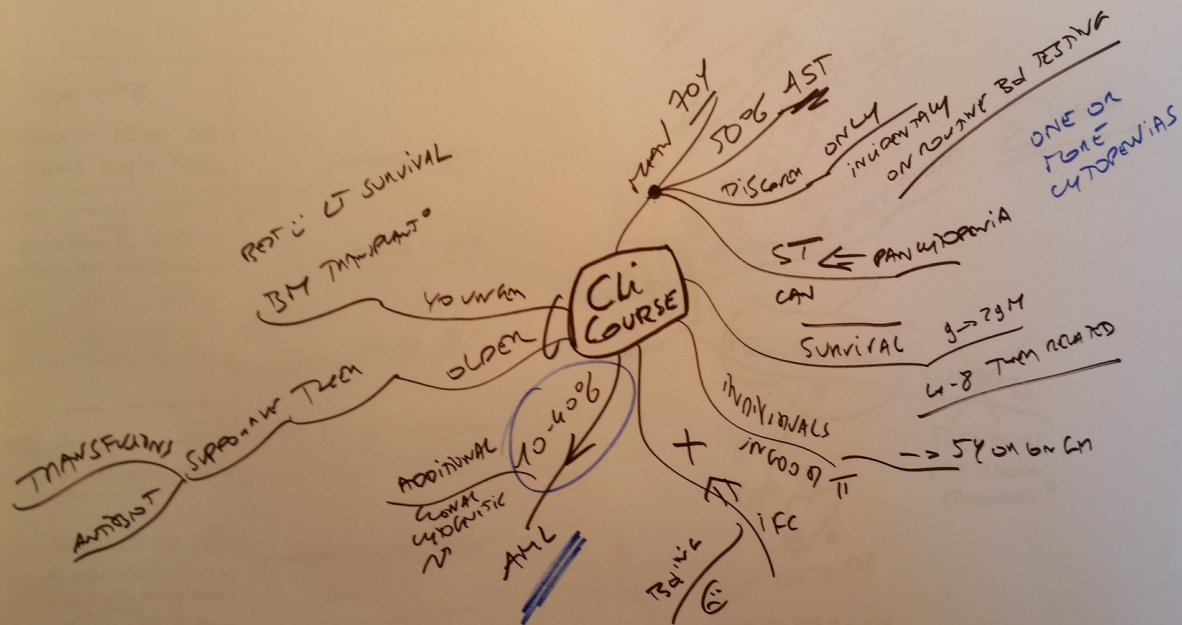












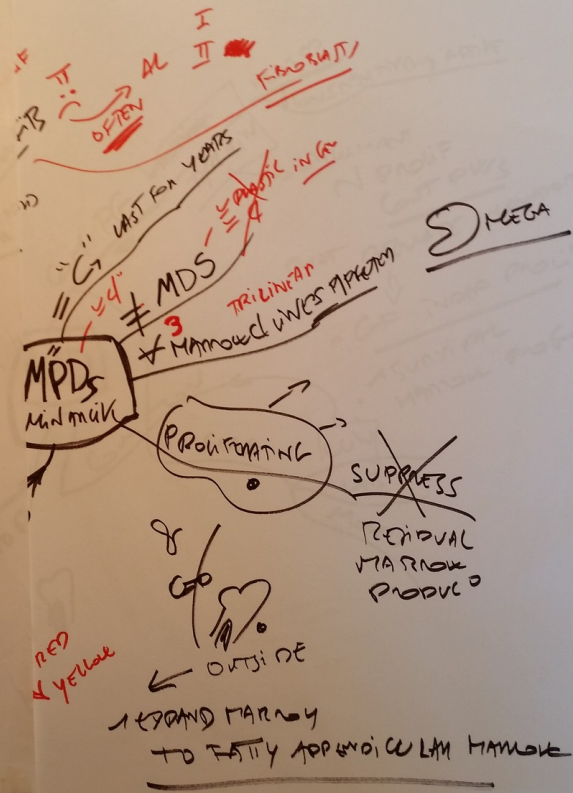


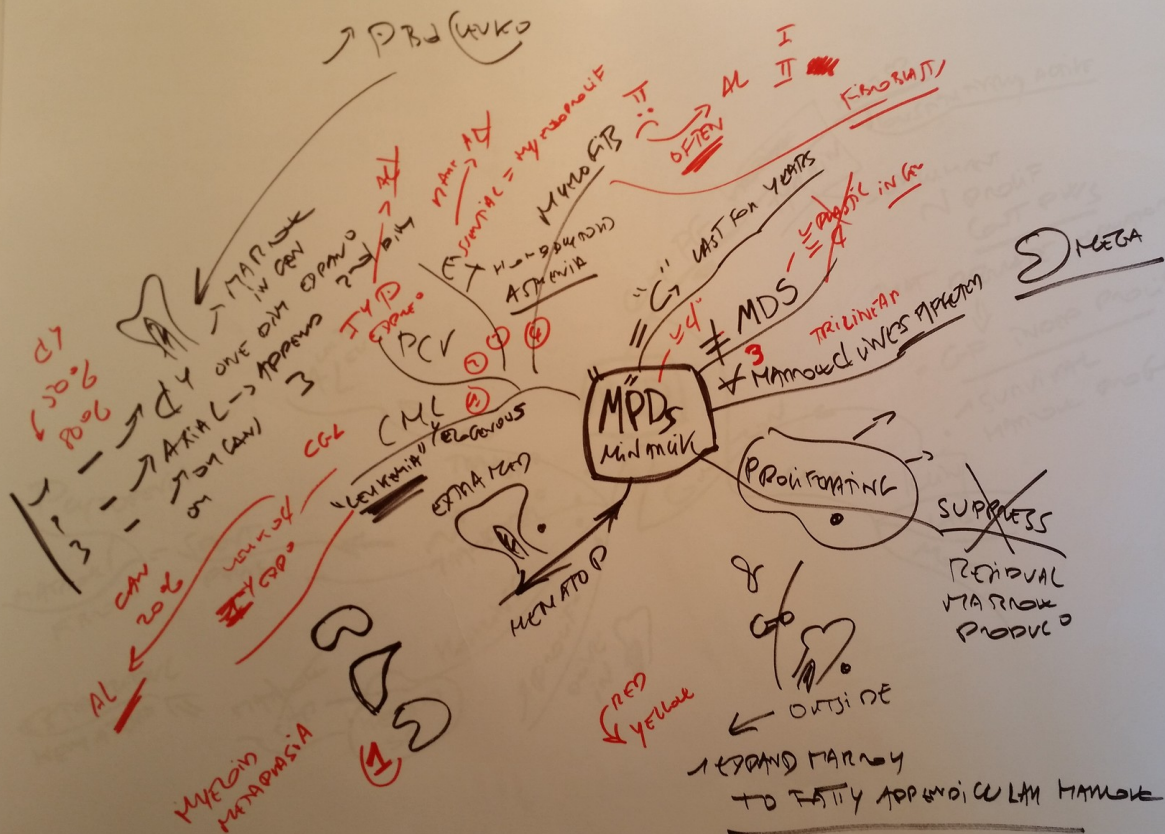
ANG HANHL ANN ARBOR

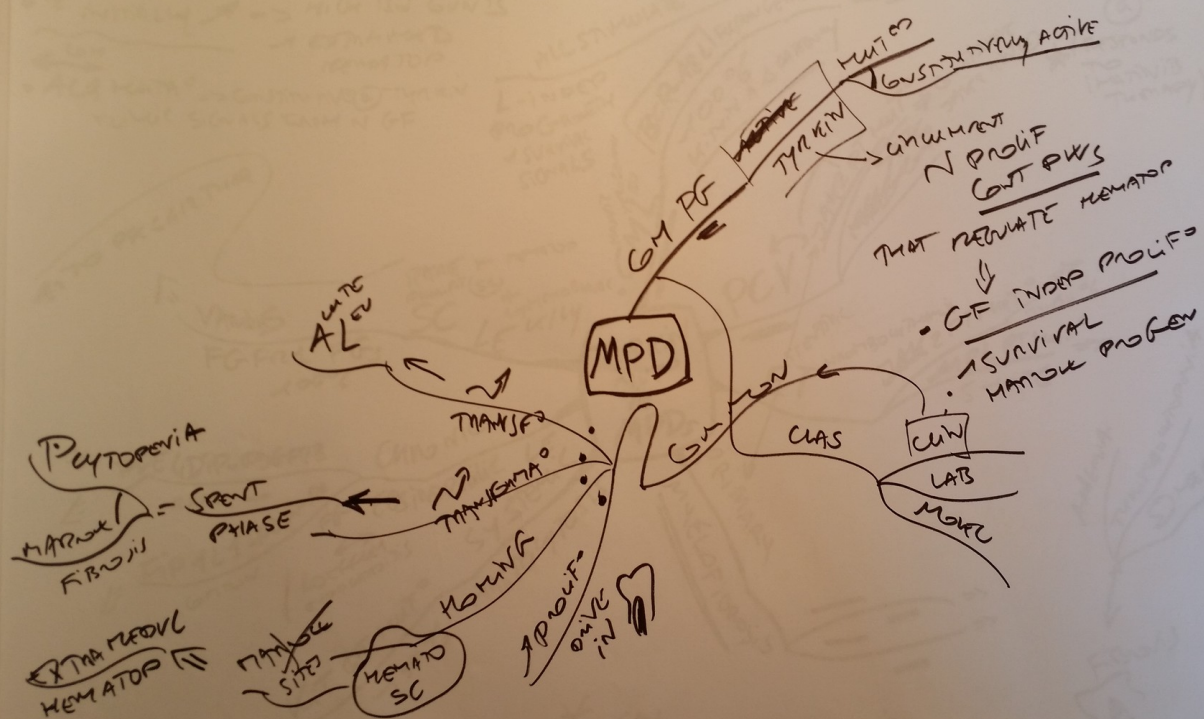
IE  
II  
IE

⊆? FROM  
OVERTAKING NIGHT SUCCEEDS  
AN UNEXPECTED WEIGHT LOSS > 10% NBSL

VELO  
ROUTE  
MPD  
island

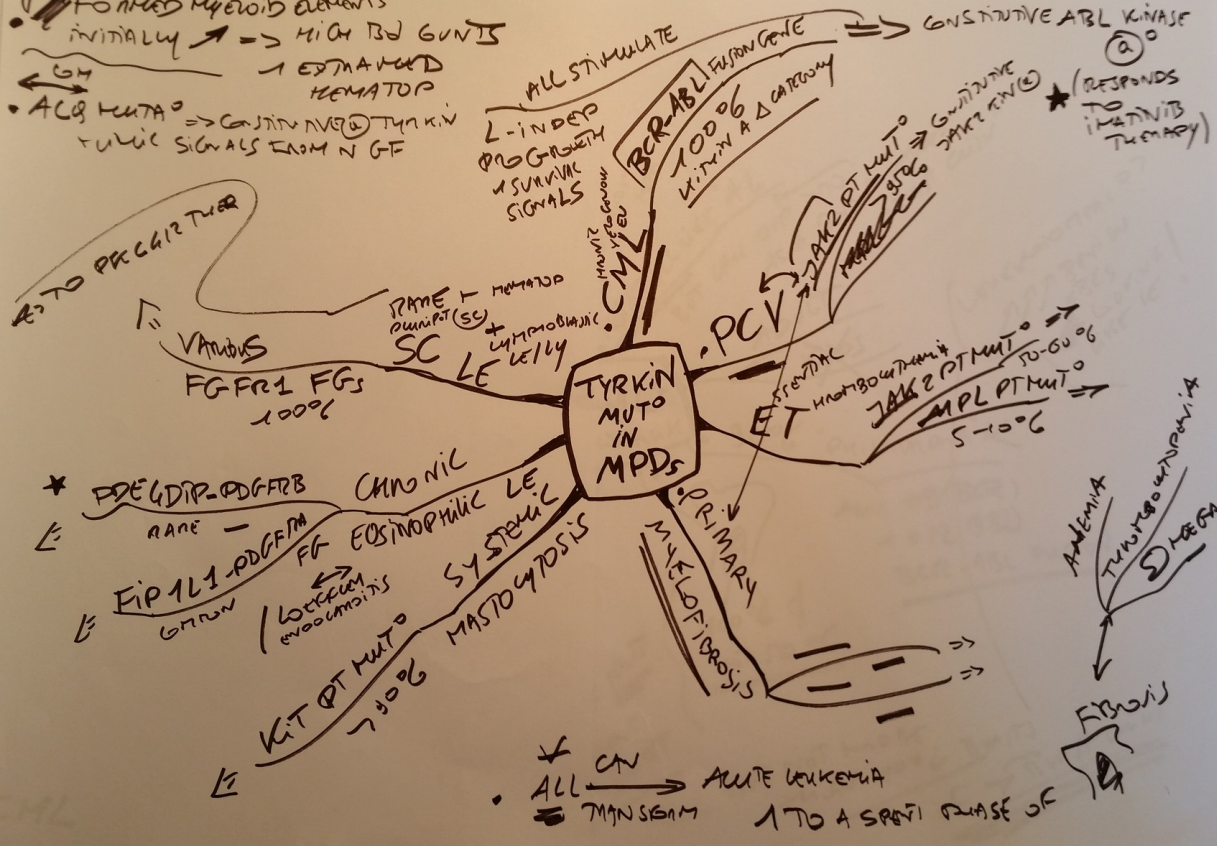








FORMED MYELOID ELEMENTS  
 INITIALLY  $\rightarrow$  HIGH B2 GUNTS  
 $\rightarrow$  EXTENDED  
 HEMATOPO  
 ACB MUTA  $\Rightarrow$  CONSTITUTIVE TYR KIN  
 TULIC SIGNALS FROM N GF



CML

NOT ALL LIKE "AL"  
BUT CAN EXP INTO "BMT CELL"  
AS A GNDIO  
ADULT  
ML2  
ANALYSIS  
90% "PHILADELPHIA"  
ASB #9 (BCR)  
1072 (ABL)  
BCR-ABL FUSION  
100% d  
NOT 50%  
NOT  
SWIFT  
BUT NOT MORE  
THAN 100% BMTS  
IF BMT CELL

90% remissions

with BCR-ABL  
W/ASE  
INH OUT

significant  
mark

can be  
positive  
MPO

NOT ALL LIKE "AL"  
BUT CAN OVP INTO  
AS A GNDIO "Blast crisis"

ADULT  
~~100%~~

Leukemia?   
177 Bcr/ABL  
BCS  
GOING  
W/ASE

PCDA  
S

I<sup>4</sup>  
6d  
↓  
↓  
↓

**CML2**  
PAINFUL

90% "Philadelphia" K

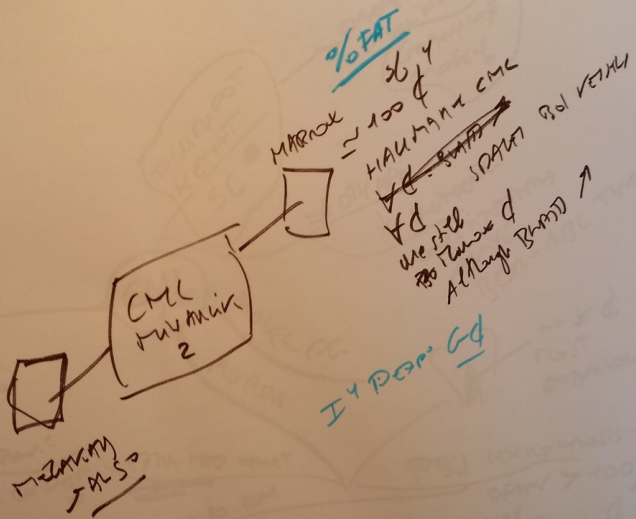
Abm #9 (BCR)  
1 #22 (ABL)  
BCR-ABL FUSION

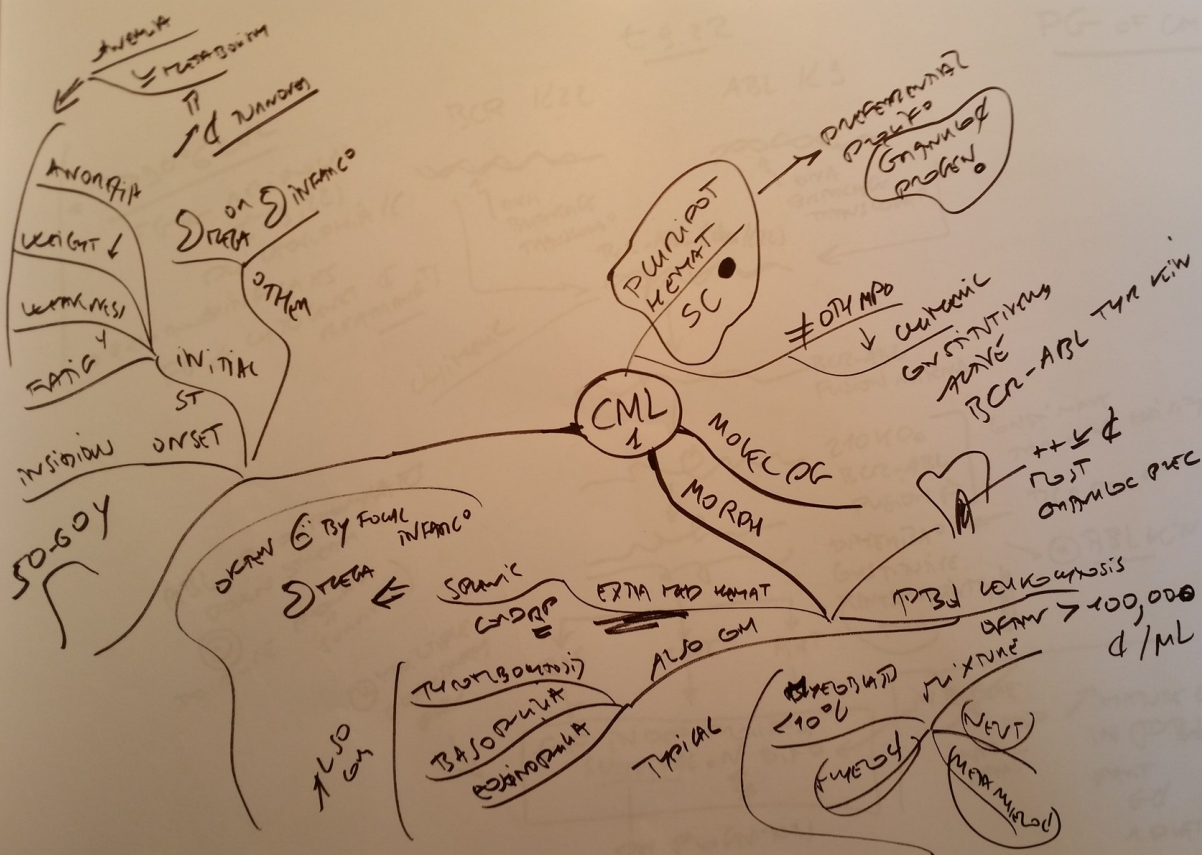
100% d  
NOT 50%

- MIE 11  
- 50K-100K NOT  
+ SIGNIFICANT  
LEFT SHIFT

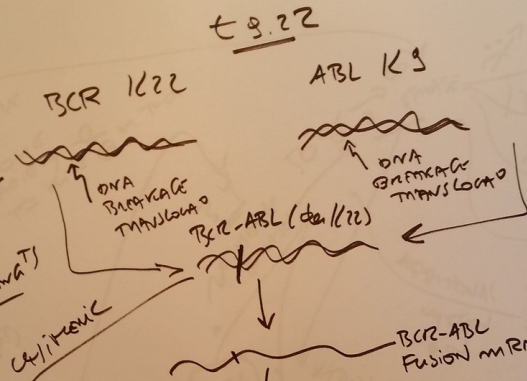
BUT NOT MORE  
THAN 100% BM/TJ  
IF → STIMIT CRISI





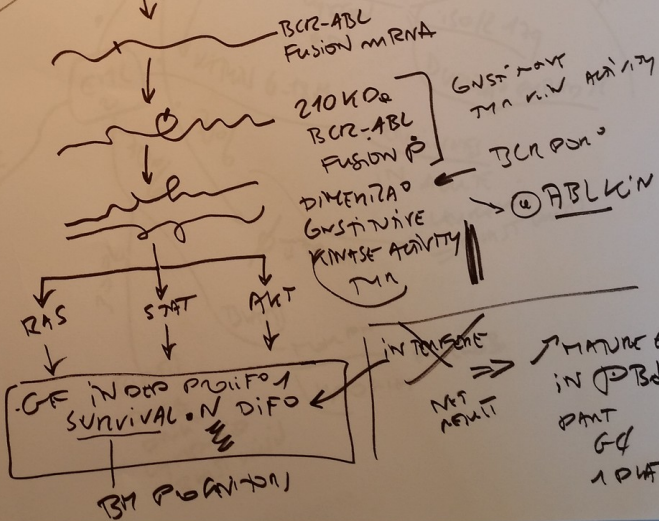


79008 CML  
 FG ← ACIP-CML  
t(9;22)  
 Philadelphia /  
 remaining cases  
 FG ← CH TO (over & remaining)



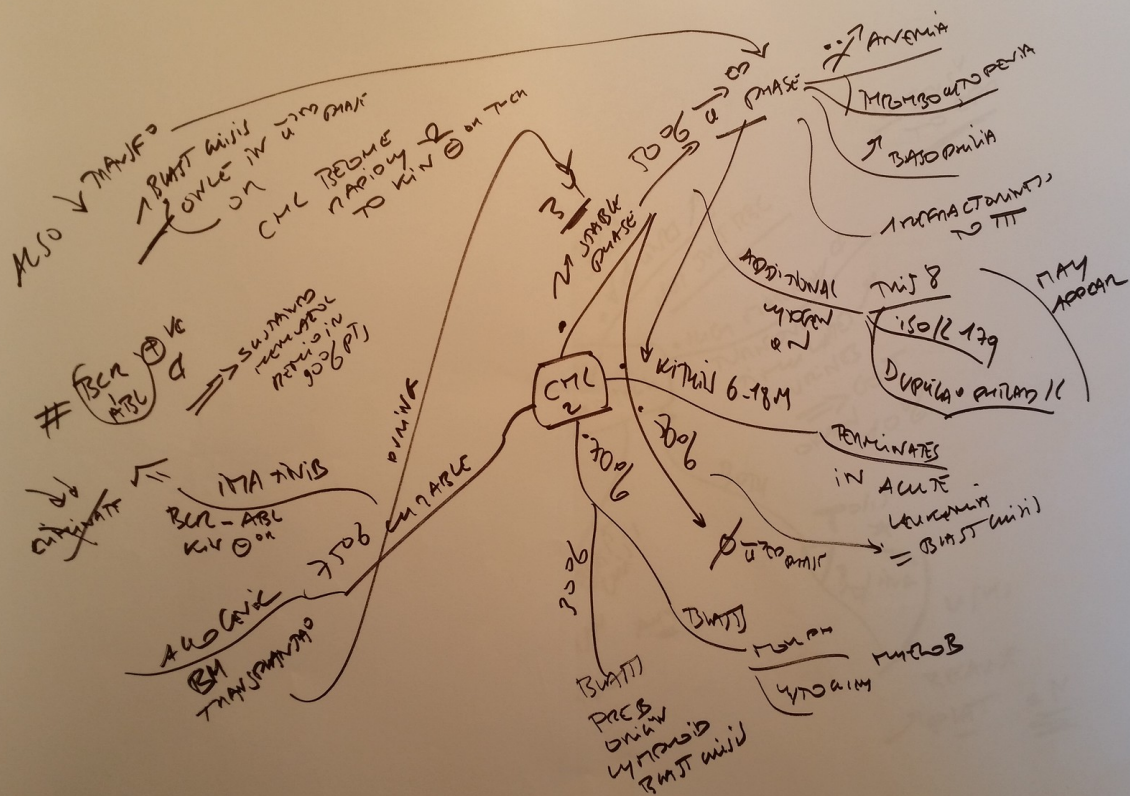
PG OF CML

ABL protein synthesis  
 down stream  
 TO DRIVE PROLIFERO SURVIVAL  
 (multiple downstream PK)

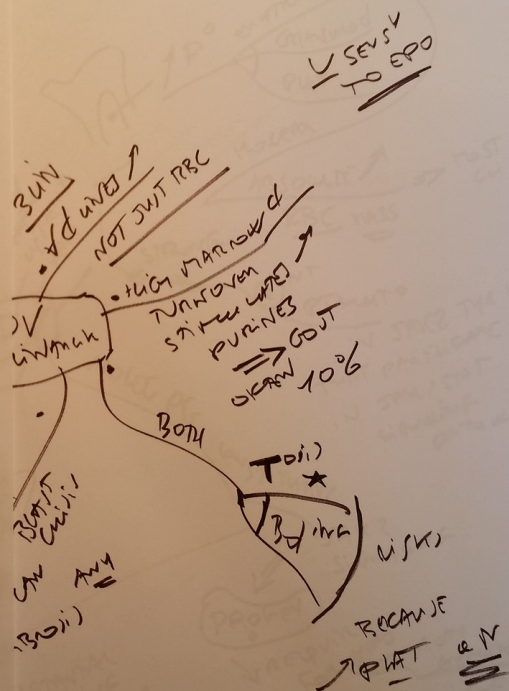


MATURE ETS  
 IN PDd  
 PART  
 G4  
 1 PART

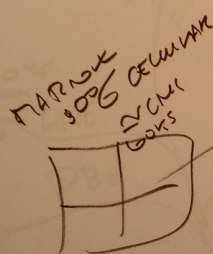




PCV



SEVSV  
TO EPO



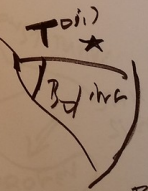
PV  
MINDMACH

3/11  
NOT DUT TBC

HIGH MARGINS  
TURN OVER  
SINCE WARE  
PURINES  
⇒ GOVT  
CLEAN 10%

BOTH

~~GOVT~~  
BUT  
LOW  
FIBROII

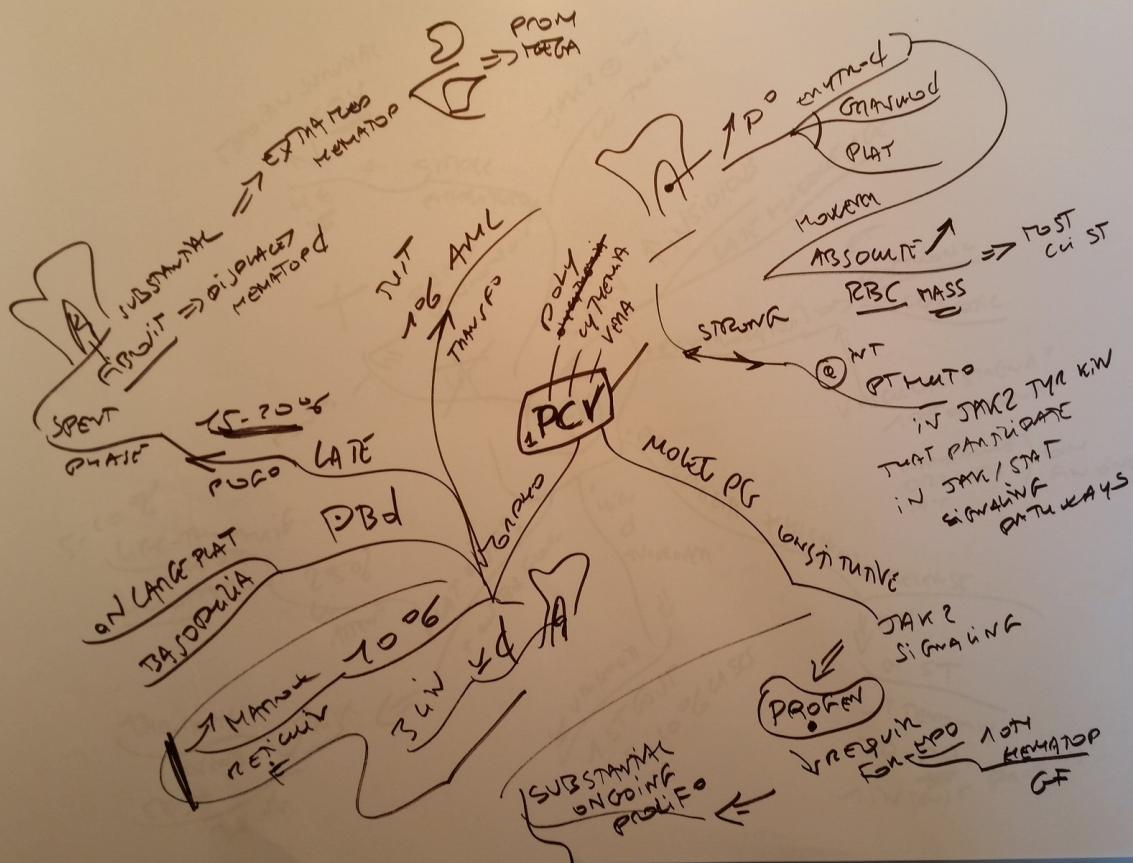


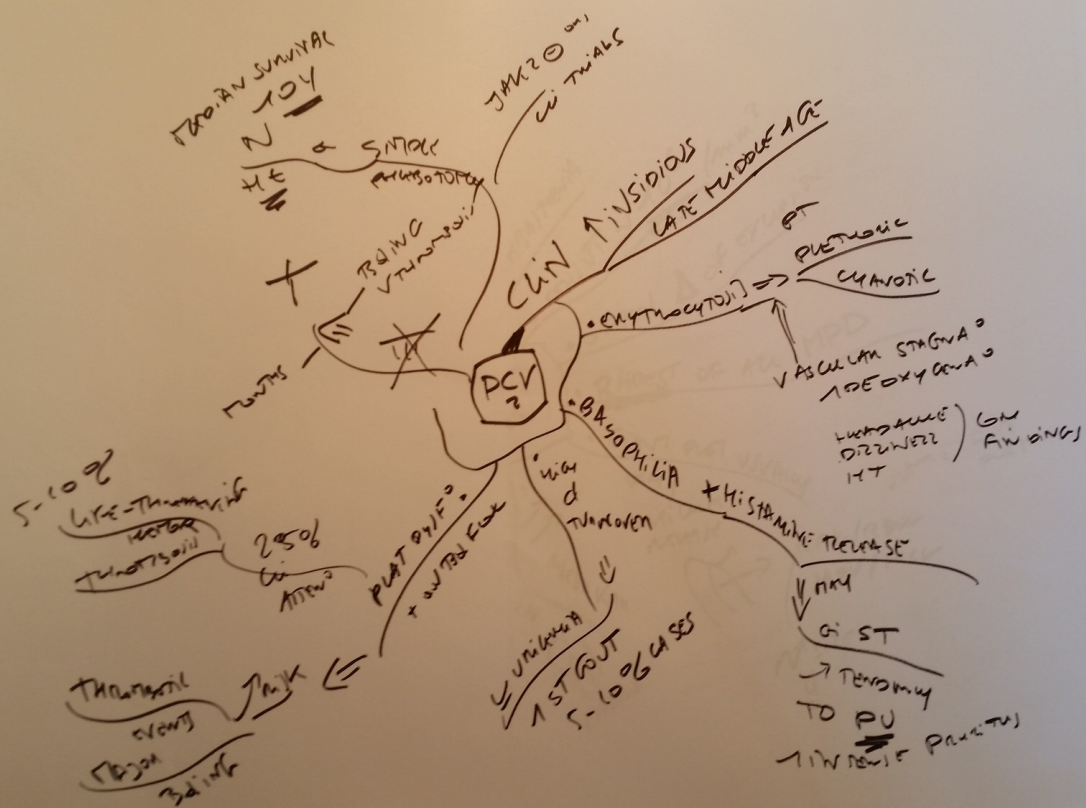
WISK

BECAUSE  
PLAT  
2/11

IY PERO  
THAT GET  
OILMIF







100 MPD/MPD  
 • COUNT  $\geq 106$  /mm<sup>3</sup>  
 • DOWN  $\Delta$  OF EXCLUSION

ET  
 (MIN) • ~~RAREST~~ OF ALL MPD  
 • GINT PUT VISUALY

IN  
 MEAN  
 MAPROX

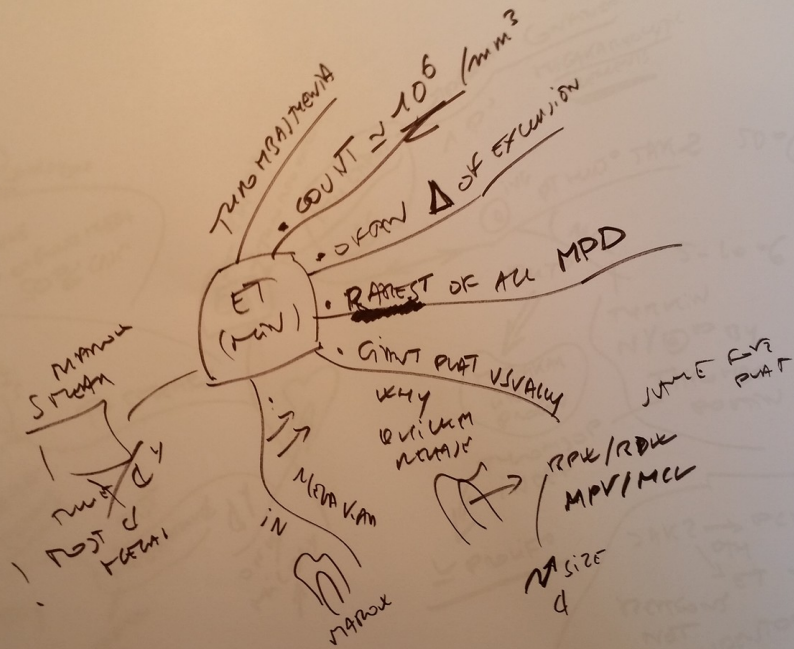
WHY  
 WITHIN  
 NORMAL

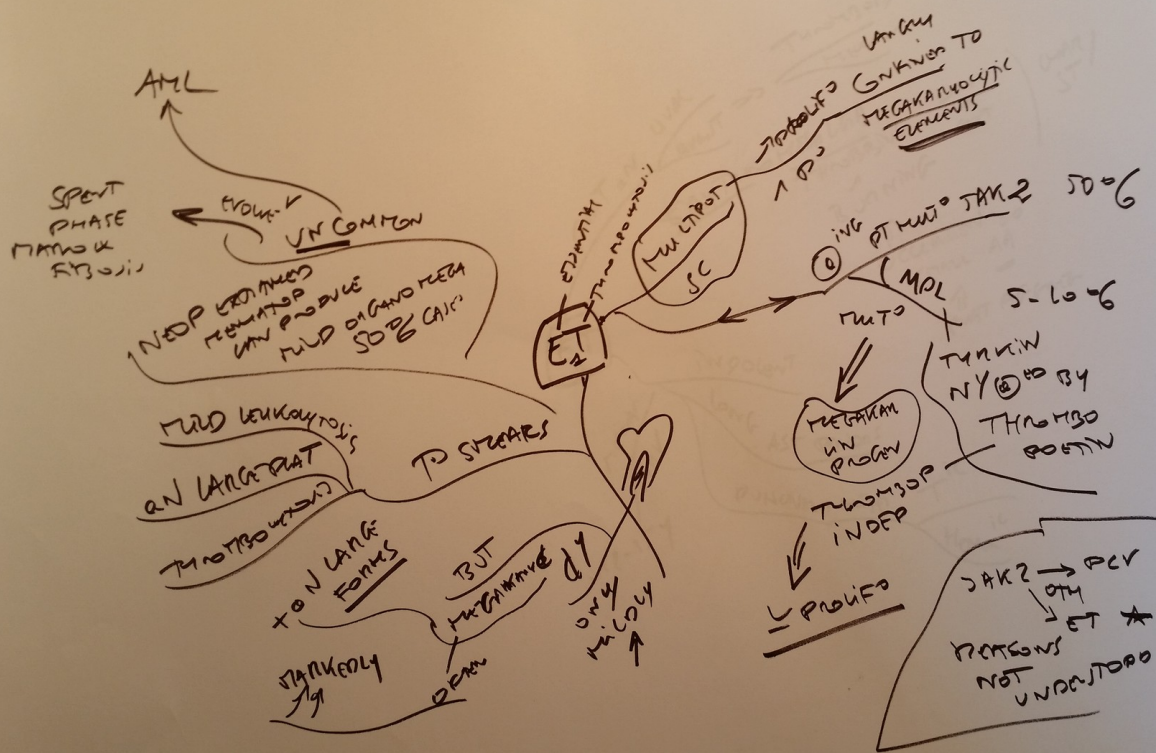
RPK/RDK  
 MPV/MCL  
 size  
 d

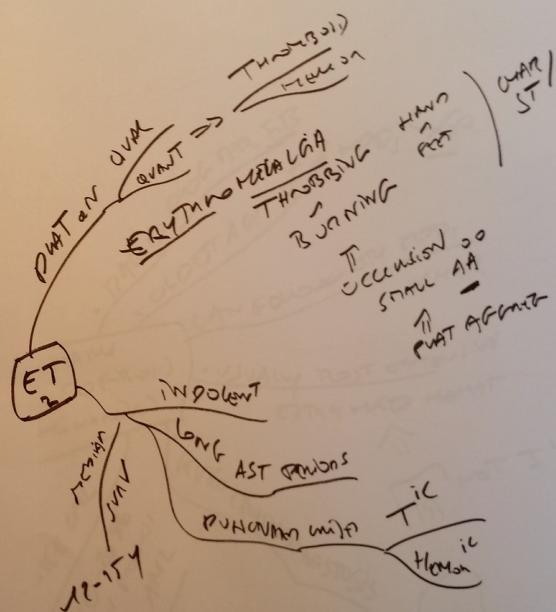
JUNE  
 PUT

ET



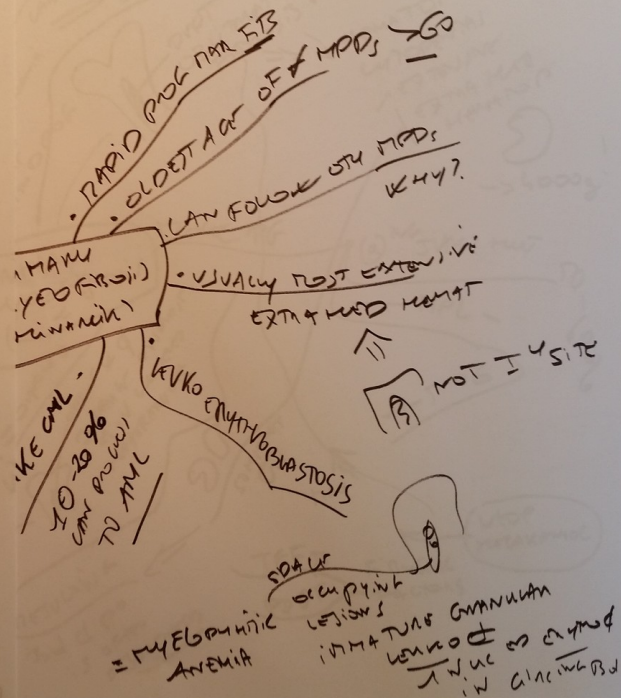




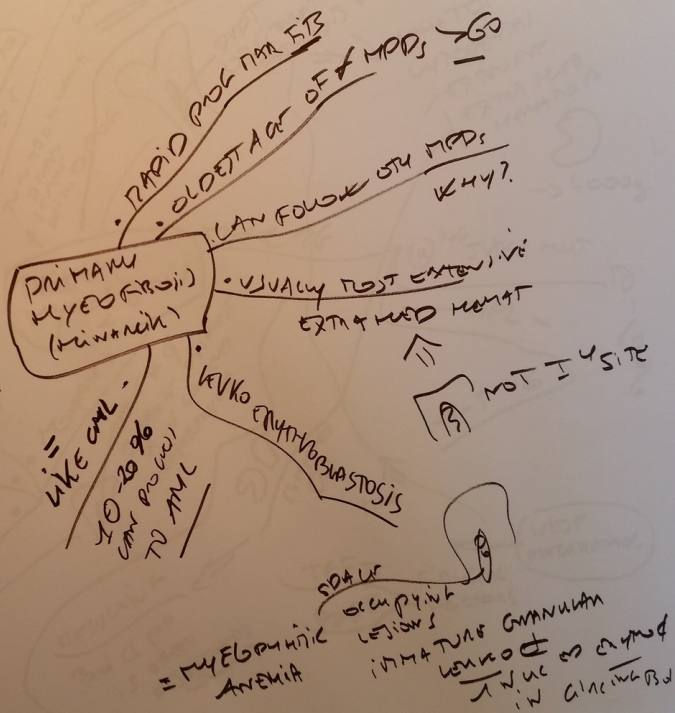


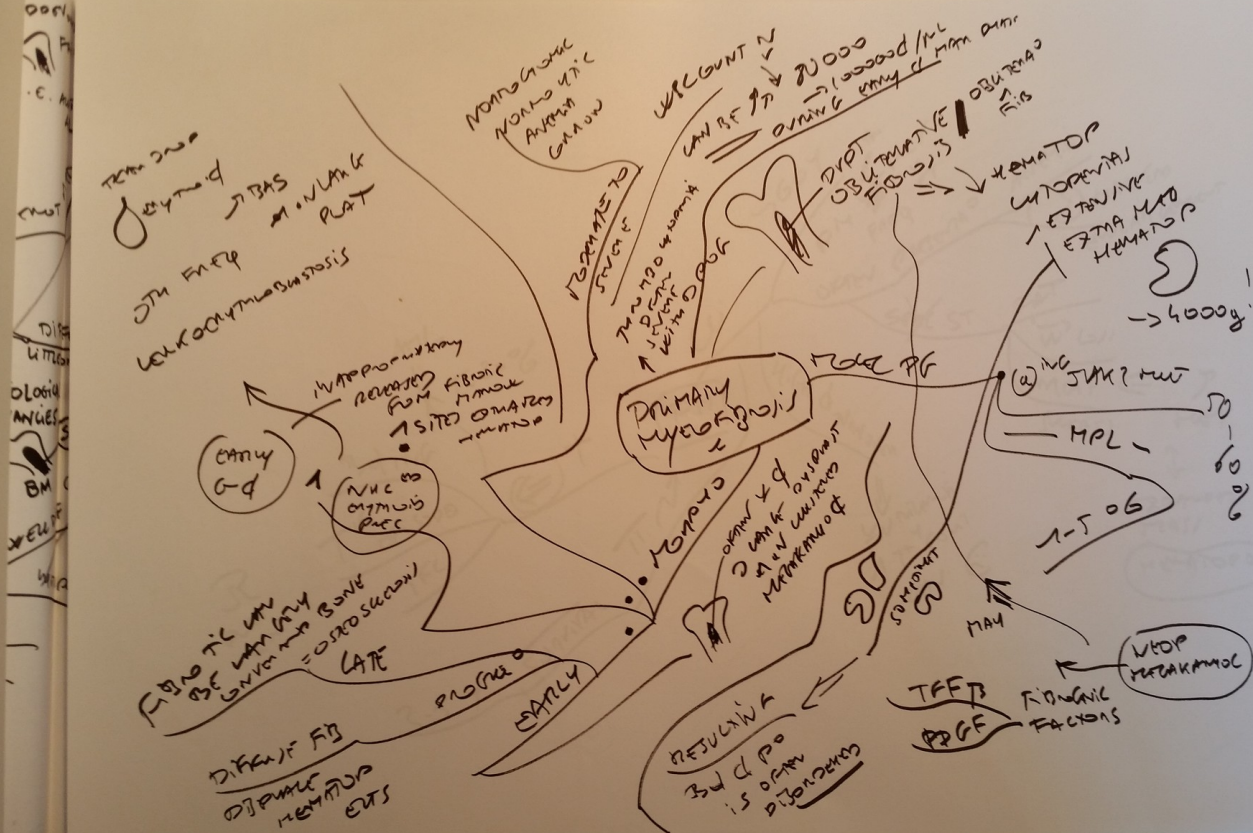


# PRIMARY MYELOFIBROSIS

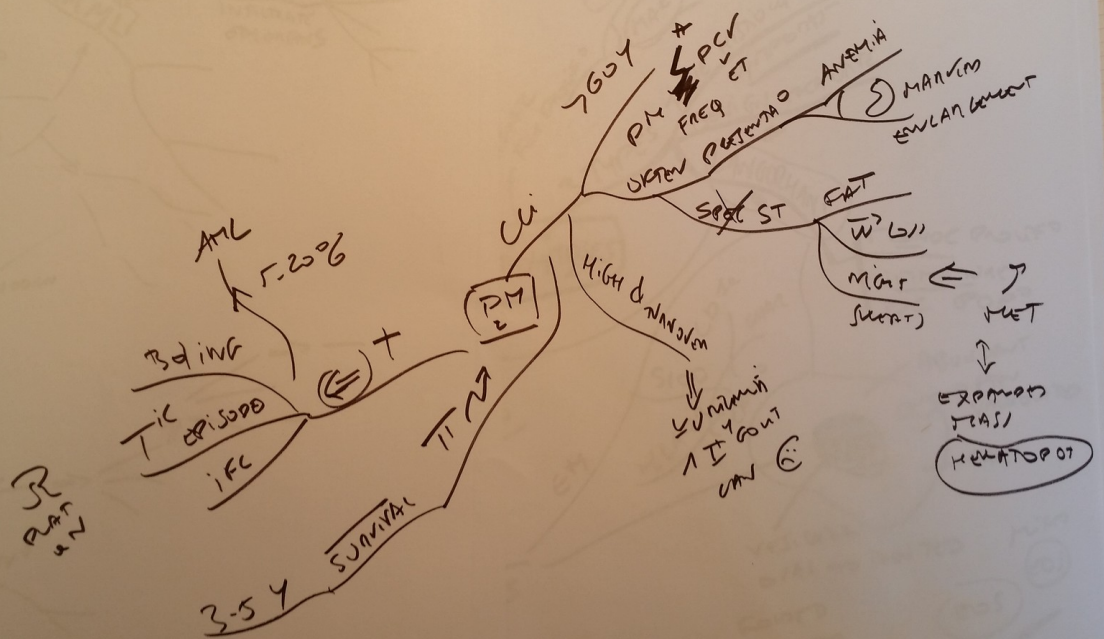


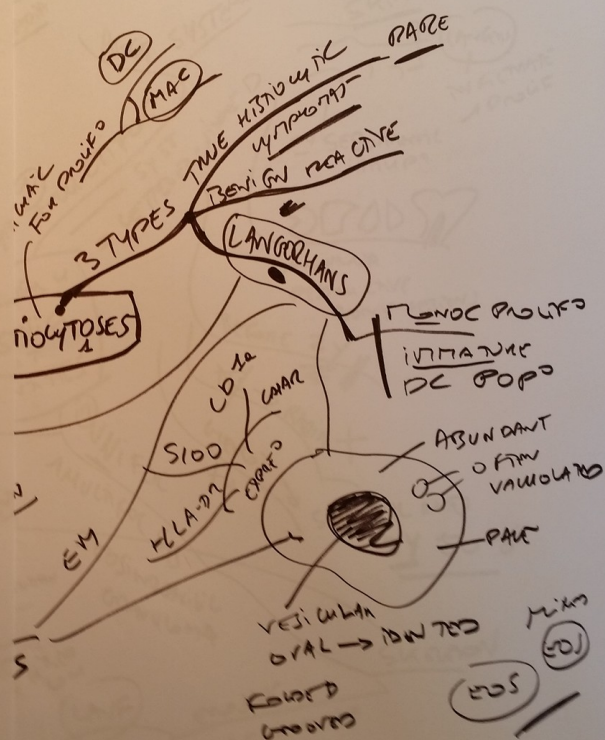
NTVALW  
 SUDOR  
 BM  
 i.e. A  
 dermot  
 T UNDF  
 ACUM  
 A SPILL  
 HEMATOLOGIC  
 MALIGNANCIES  
 BM  
 WELF  
 WELF



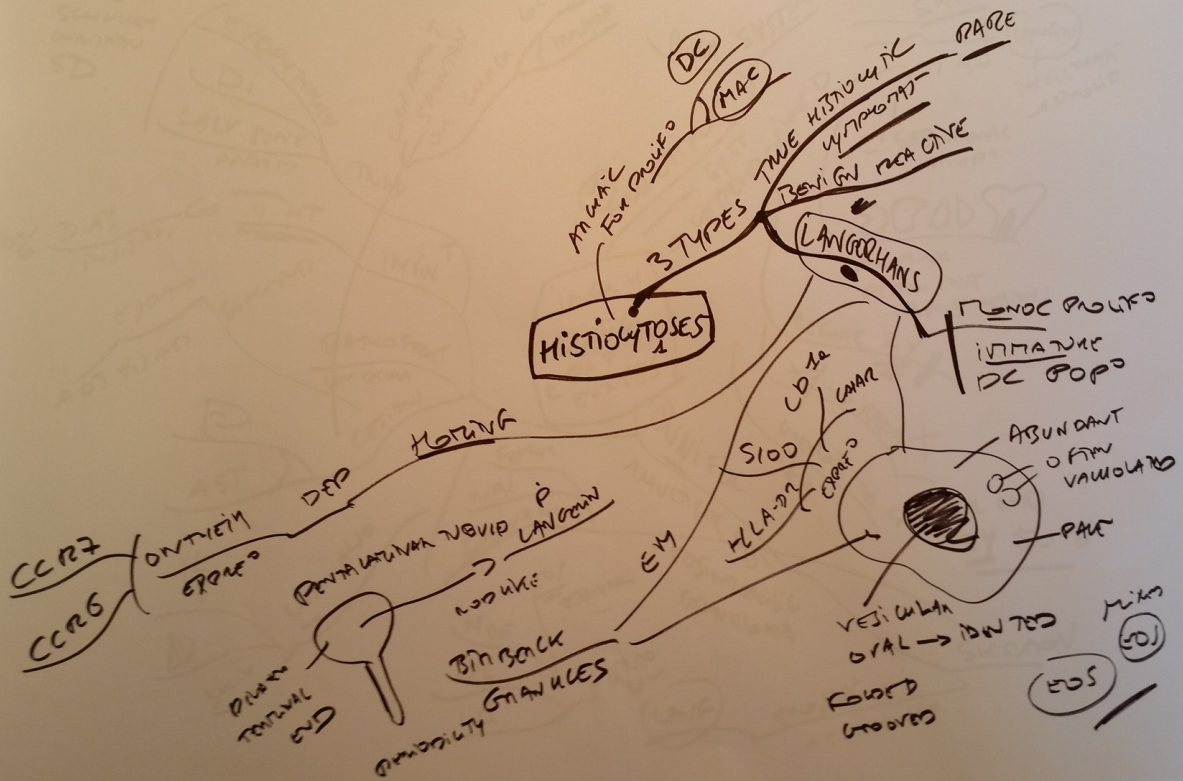




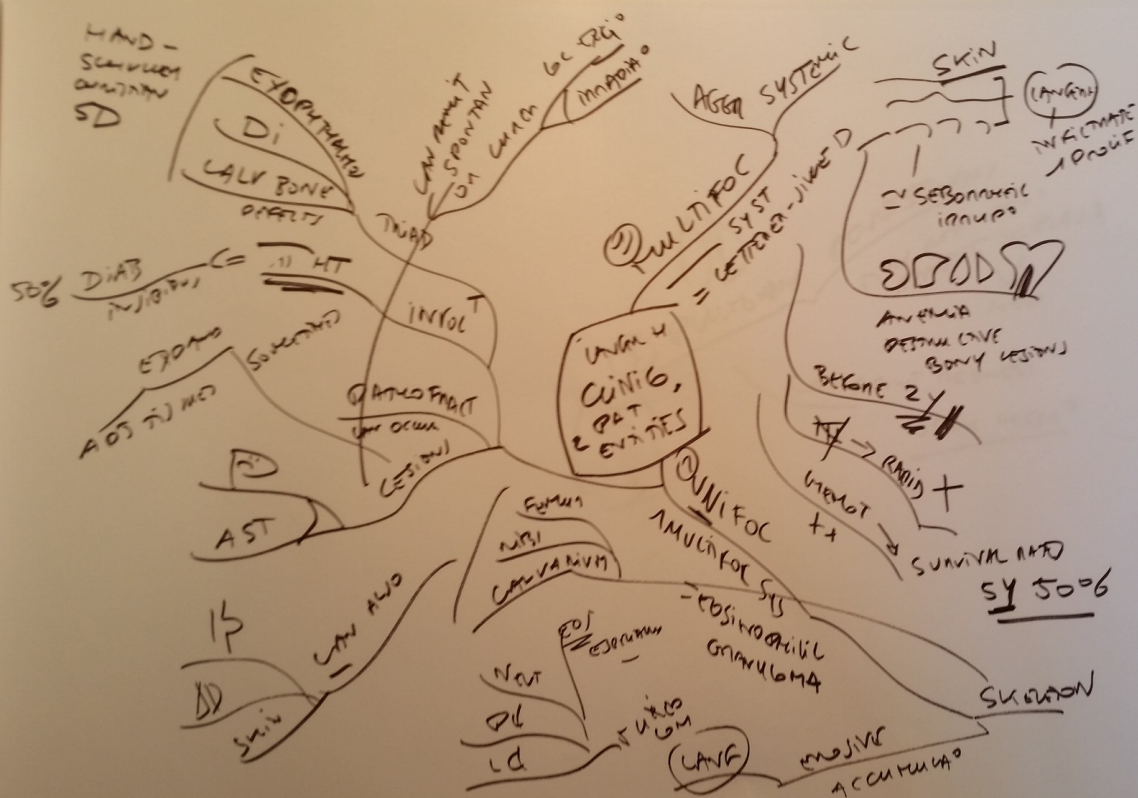




LANGERHANS & HISTIOCYTOSIS







③  PULBIRNY ADULT STGEM  
IN AN AN-EX-  
PERIMENT = PLASIA  
✓  
NED

CAN SPWT REGRESI

STOK CESSA?





- BORDERED BY  
DIAPHR

SPURIC FLEXURE  
IP

- SMOOTH 100% VOLUME

50% RD  
50% WP

ALSO → RBCs  
→ LF (GROSS) → RBCs

RED  
BLUE  
MICRO  
SPURIC  
CONOS

### SPURIC FUNCTION

- MAC II YONGAN  
IMM SYST

REMOVE OLD  
PHAGOCYTOSIS

1 PAN TILIMAT  
MATTEN  
NOT ONLY  
RBC

① CYTOKINE DIFFERENTIATION  
COND → SIMULATING

MAC PHITING RBC

MACROPHAGES  
HETEROGENEOUS  
V HETEROGENEOUS  
DO NOT BIND  
AND EXIST

ACTIVATION

SEPARATION  
↓  
TRANSFORMATION

N 30-60  
PULSATION

MEFA  
VOL ↑

N 30-60  
2nd end

JERK  
TAMPING  
↓  
LUMP

SEQUENT  
SEQUENCE  
FOR MED B2  
ELEMENTS  
POOL

MPD  
CHL

THINNS  
SPRUE  
CHRONIC  
TUMOR

150g  
POST LUP  
= LIKE  
★ 1/10

COMPARAT  
EXTRA FUND

HEMATOID

WAV  
MAJOR

FETAL DRAT  
FUNCTION SITE BIRTH ↓

DC

CP

T

ADHESION

AVTO

SELF

AVTO

SELF

- CONFERENCE WP  
WPMRMA & GERMANY

• BOTAL HT  
POM RP 50%

ENLARGE  $\leftarrow$   $\begin{matrix} \text{NP} \\ \text{for?} \\ \text{NP} \end{matrix}$  /  $\leftarrow$   $\begin{matrix} \text{NP} \\ \text{on} \\ \text{NP} \end{matrix}$

25g  
small  
✓  
(100%)

Drinks  
↑ 1 can  
since D

1506 Body Pharmacokinetics

1506  
750000

11 MPS  
LARGEST

4 SPAIN

✓ PHAG CAPACITY

$\Rightarrow \rightarrow$  sensit

VACANT

INSUFFICIENCY  $\hookrightarrow$  SPREADSHEET  
LA TO ME

↑ susceptibility  
SEPSIS

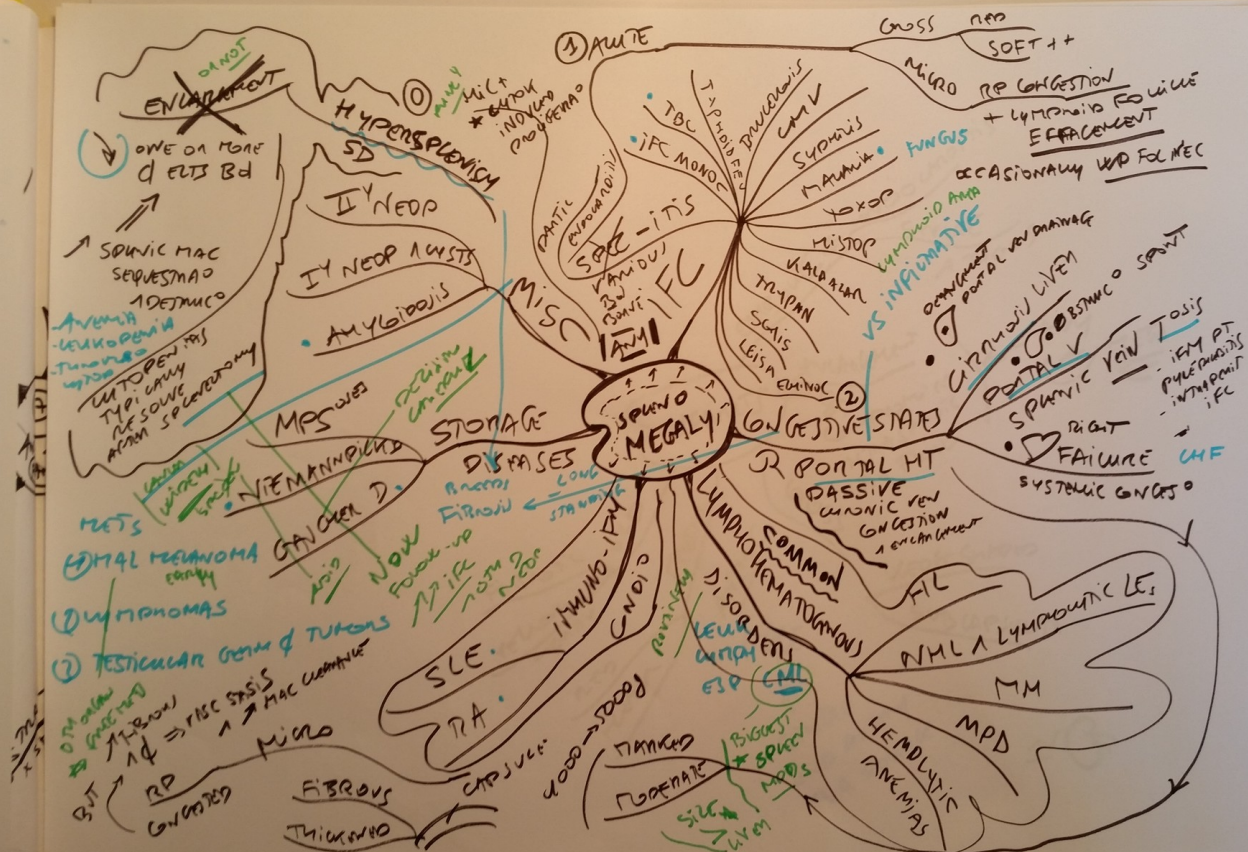
ENCAPSULATED TB

- primary Coc
- primary Coc
- HLA no primary

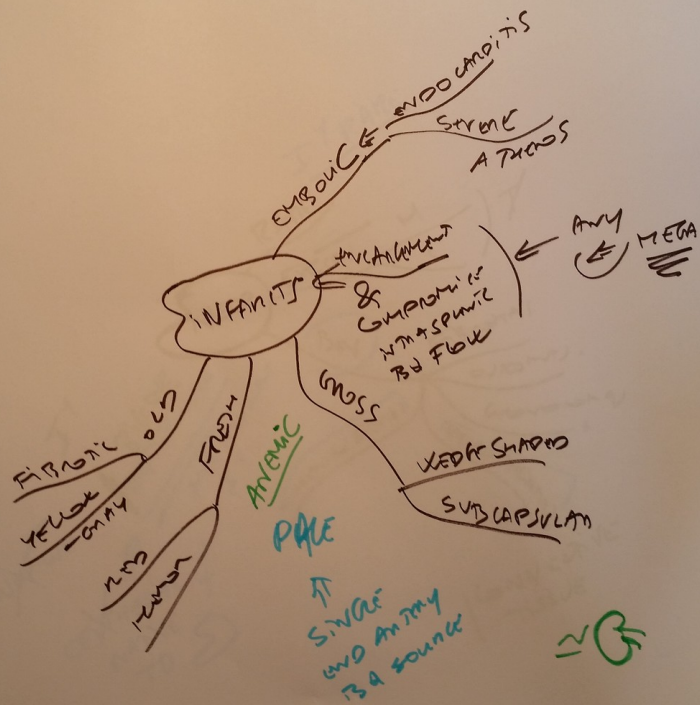
W. H. Meyer

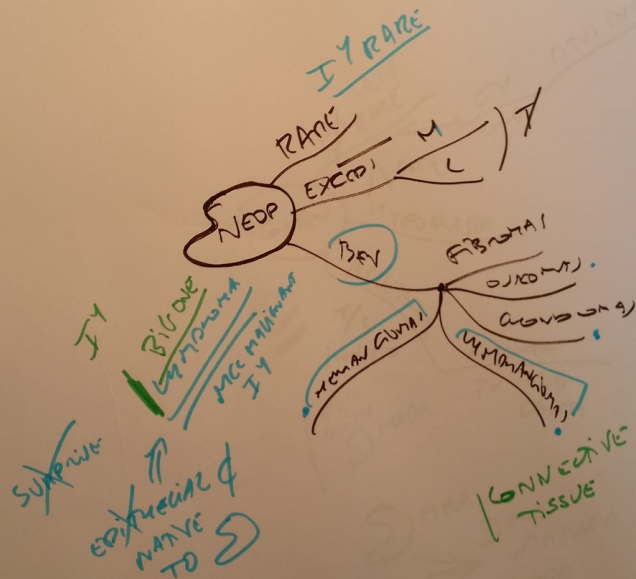
MEGA  
HABON MANIFETA<sup>2</sup>  
NARELY IY SITE D



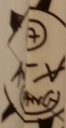




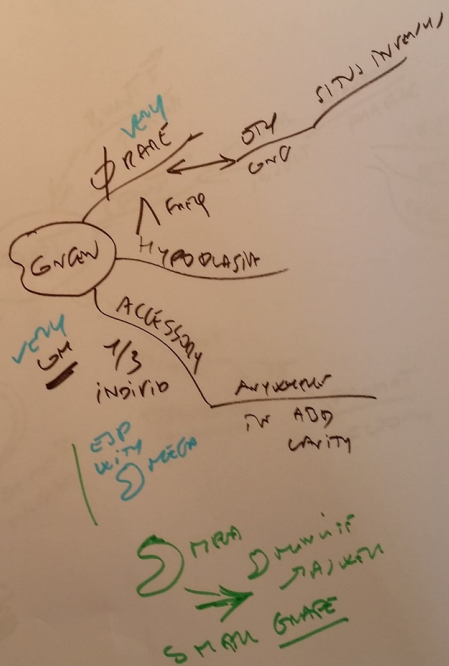




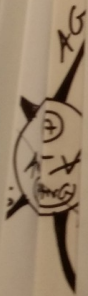
AG



SMITH  
STUCK  
OUT

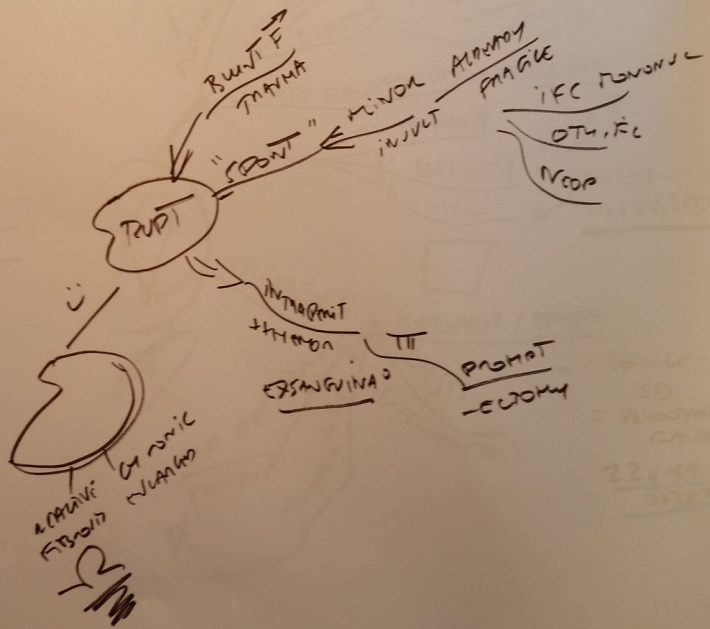






SMILE  
+ STUG  
DIF

REDRAIN  
EMPSULE



# THYMUS

