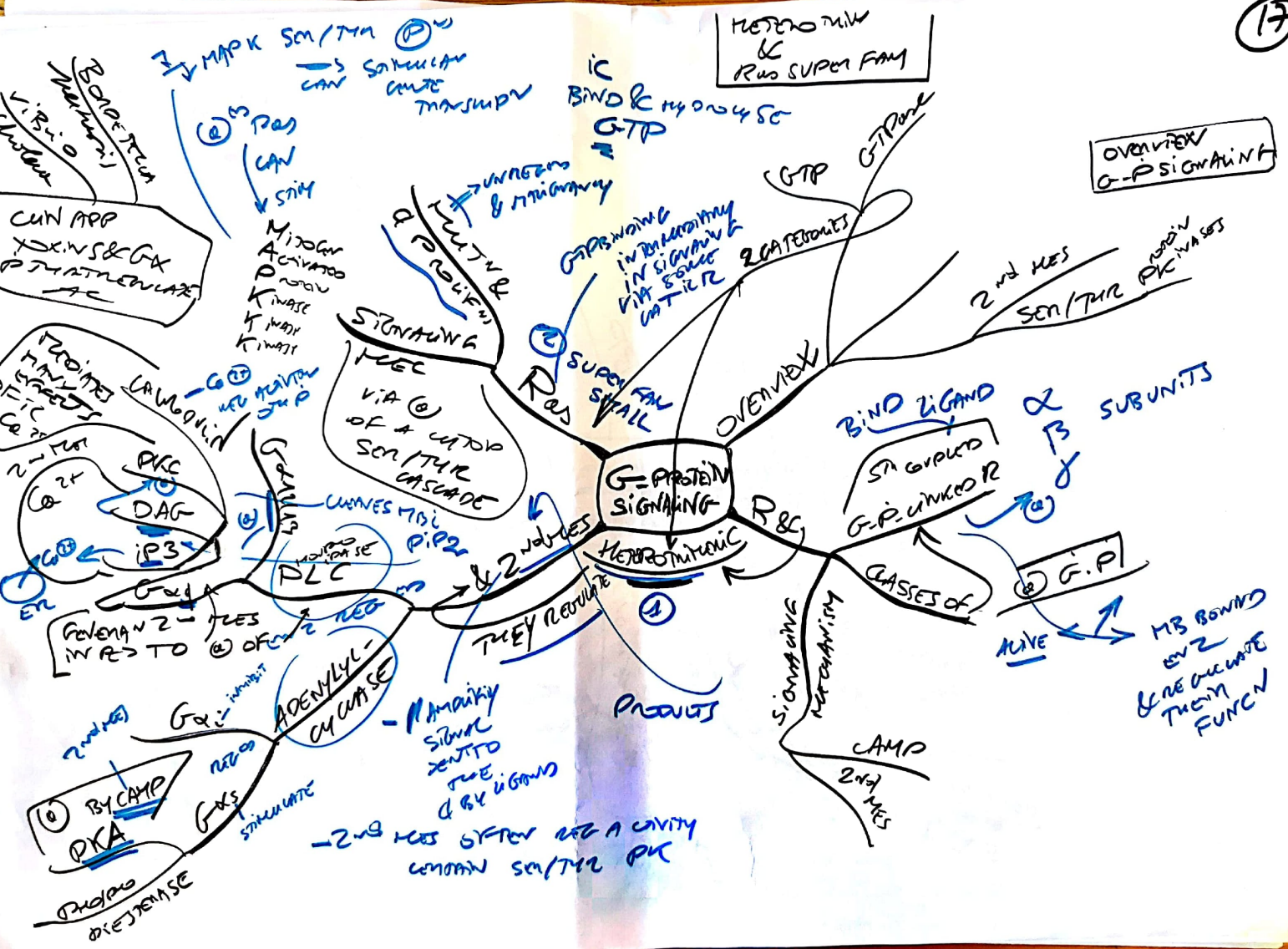


MEMBRANE & RAS SUPERFAM

OVERVIEW G-P SIGNALING

G-PROTEIN SIGNALING



MEMBRANE & RAS SUPERFAM

IC BIND & HYDROLYSIS GTP

OVERVIEW G-P SIGNALING

2nd MES SER/TYR PKINASES

BIND LIGAND

single subunit

G-P. LINKED R

alpha, beta, gamma SUBUNITS

R & G

G-P. LINKED R

CLASSES OF

G.P.

ACTIVE

INACTIVE

MB BOUND ENZ ARE CHANGING THEIR FUNCN

ADENYLATE CYCLASE

Gq, Gs, Gi, G12/13, G16/17

PKA

cAMP

PLC

DAG, IP3

STIMULATION

via GPCR

via GPCR cascade

INHIBITION

via GPCR

via GPCR cascade

GTP BINDING & HYDROLYSIS

GTPase

GTP

GTP-bound

GTPase

MEMBRANE & RAS SUPERFAM

IC BIND & HYDROLYSIS GTP

CUN APP

YOKINS & Gx

P-TYROSINYLASE

etc

PROTEIN KINASES

PKC

DAG

IP3

PLC

ADENYLATE CYCLASE

Gq, Gs, Gi, G12/13, G16/17

PKA

cAMP

PLC

DAG, IP3

STIMULATION

via GPCR

via GPCR cascade

INHIBITION

via GPCR

via GPCR cascade

GTP BINDING & HYDROLYSIS

GTPase

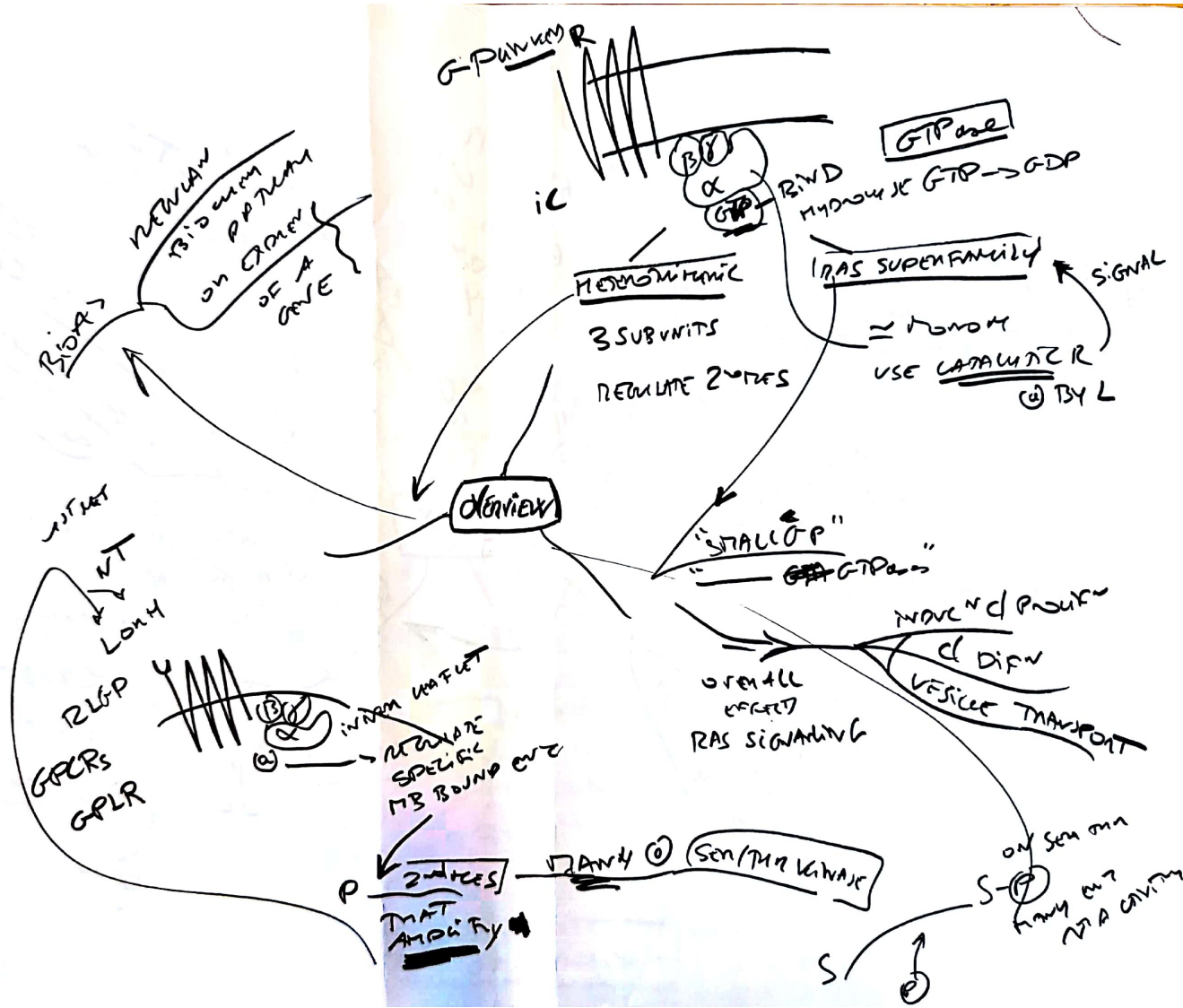
GTP

GTP-bound

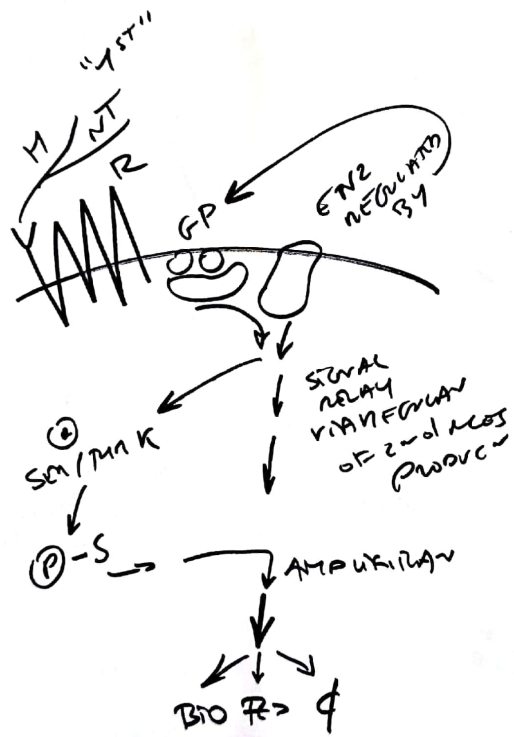
GTPase

MEMBRANE & RAS SUPERFAM

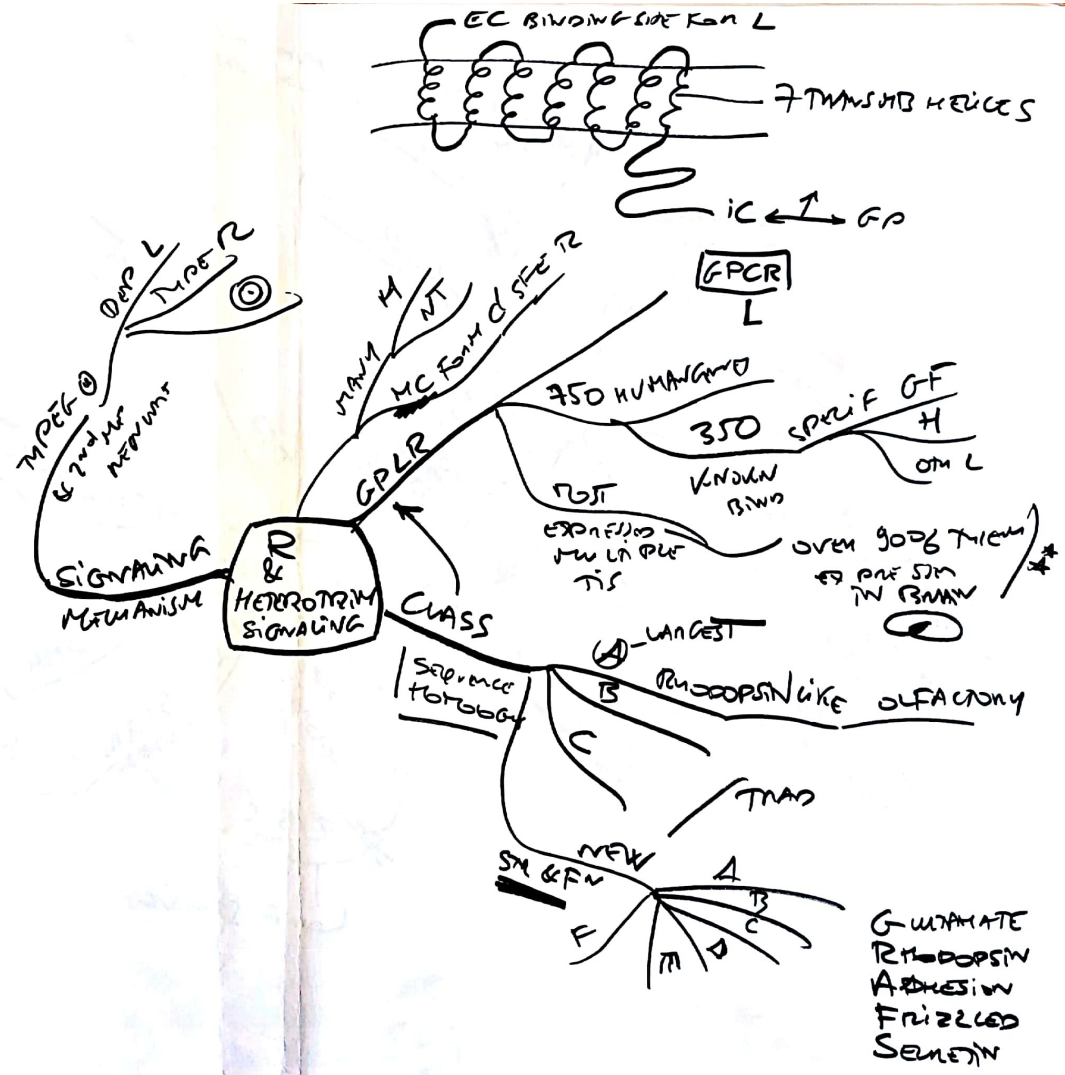
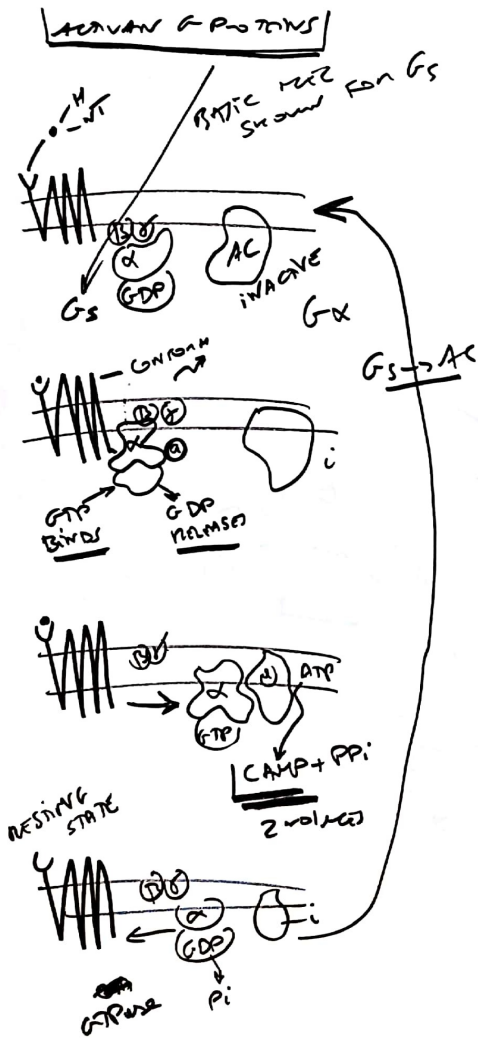
IC BIND & HYDROLYSIS GTP

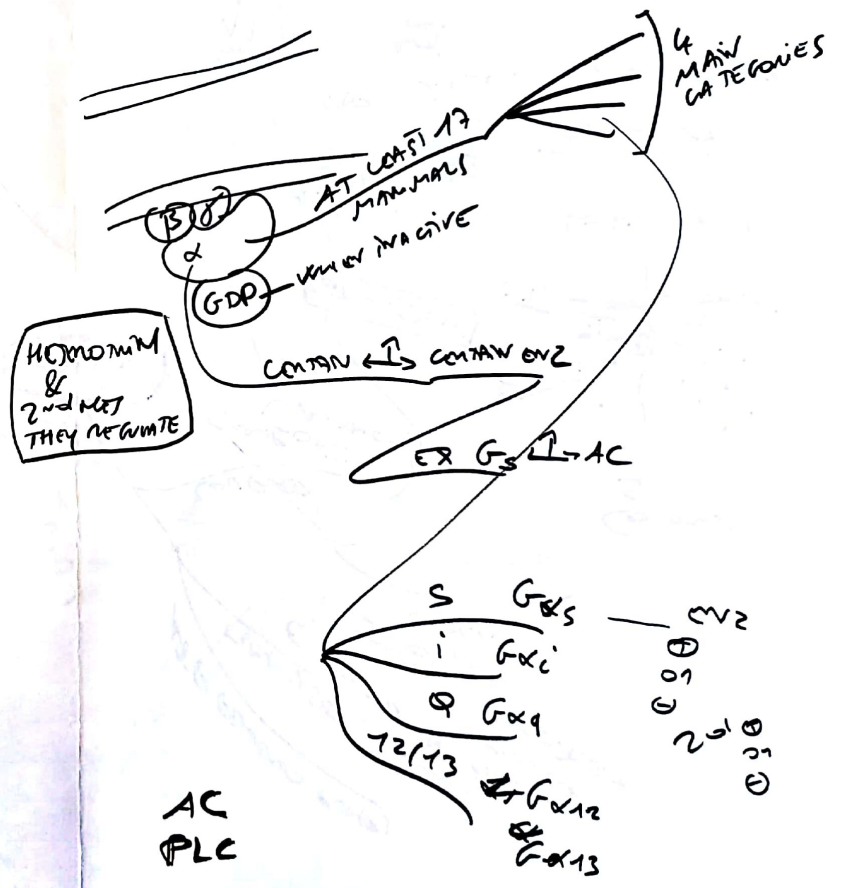


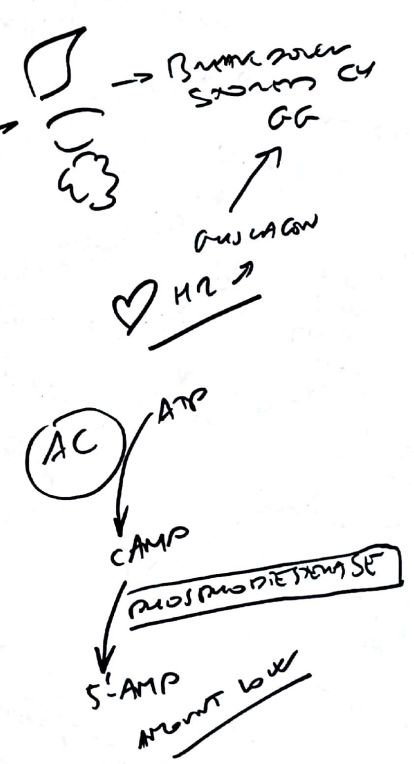
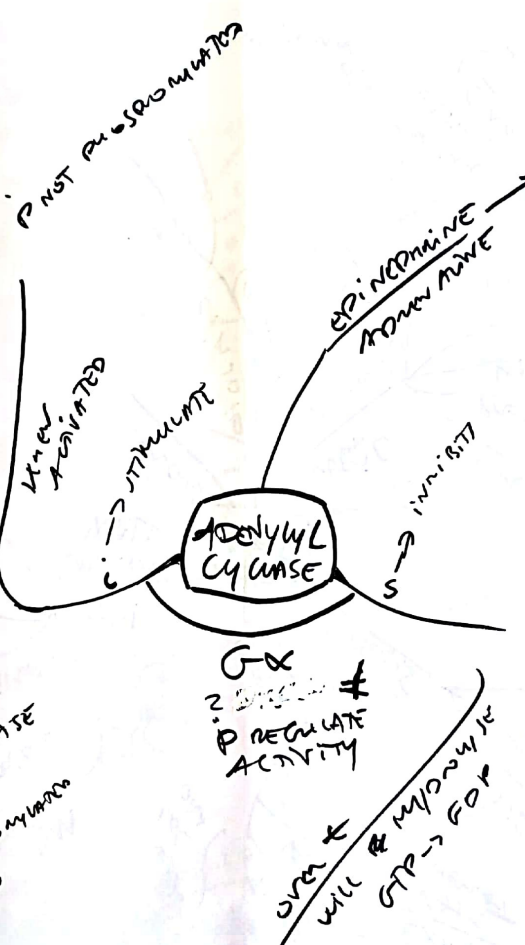
1. ...



OVERVIEW
OF SIGNALING

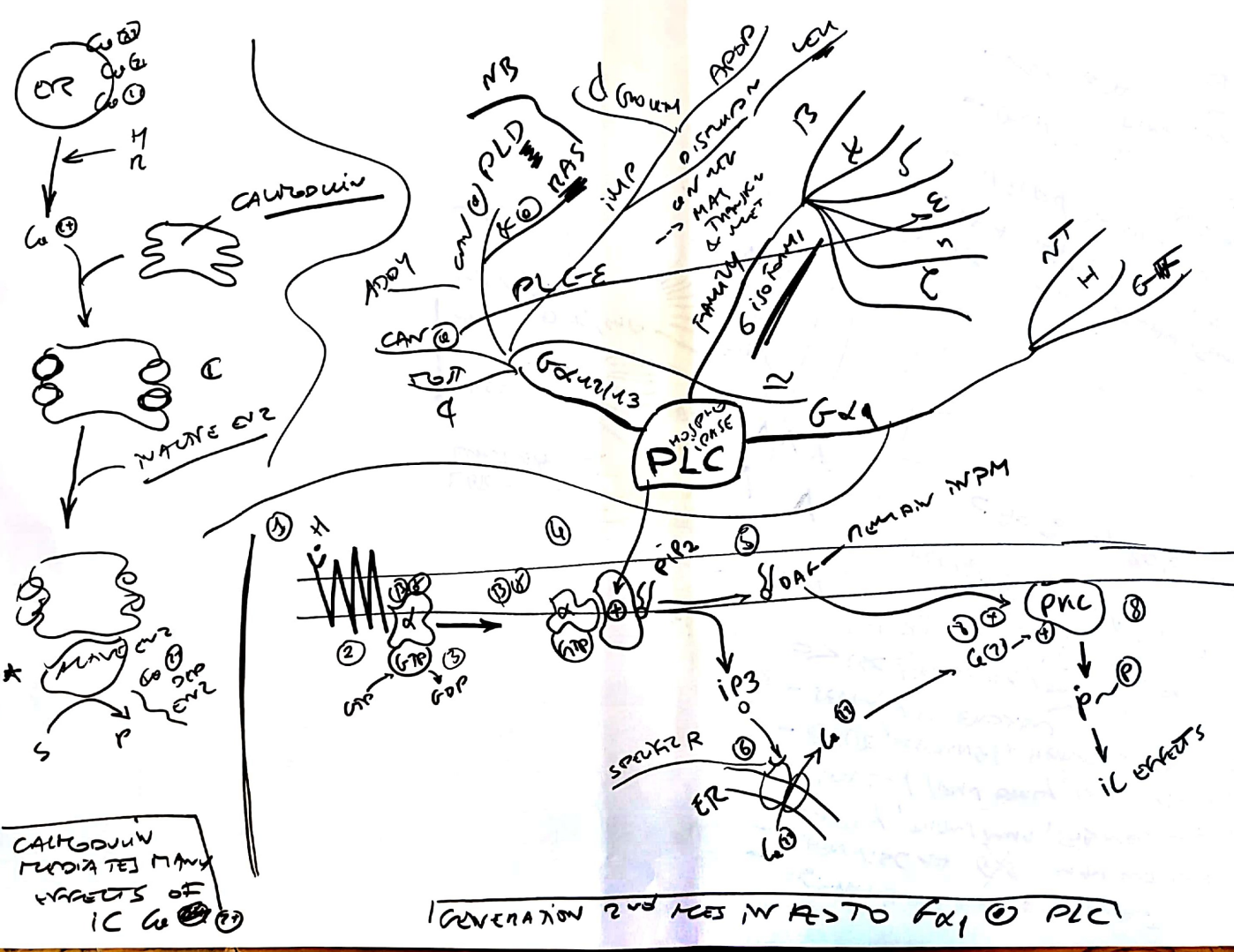






OVER & MYOBLASTIC
WILL GTP → GMP

ACTIVATION PKA BY CAMP



CALCIUM MEDIATES MANY EFFECTS OF IC

GENERATION 2nd MES IN RES TO FX1 @ PLC

Vibrio cholerae
mtd

12T

Cholera Toxin

Penicillin Toxin

decreasing
G_s on
VACUOLAR
35.10⁶ cells
237,000+

Both

ADP
SUBUNITS

G_s

INH G_s

CANNOT INH

AC

CAN
ADD:
TOXINS
&
G_s THAT
NEGATE
AC

G_s UNIT

CANNOT
HYDROLYSE
GTP

VAC ACTIVE
INH

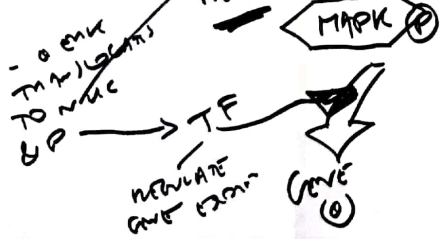
DIAH DEHYDR

EXCESS CAMP
G_s units
CAN INH
→ VOLUME
& DEHYDR

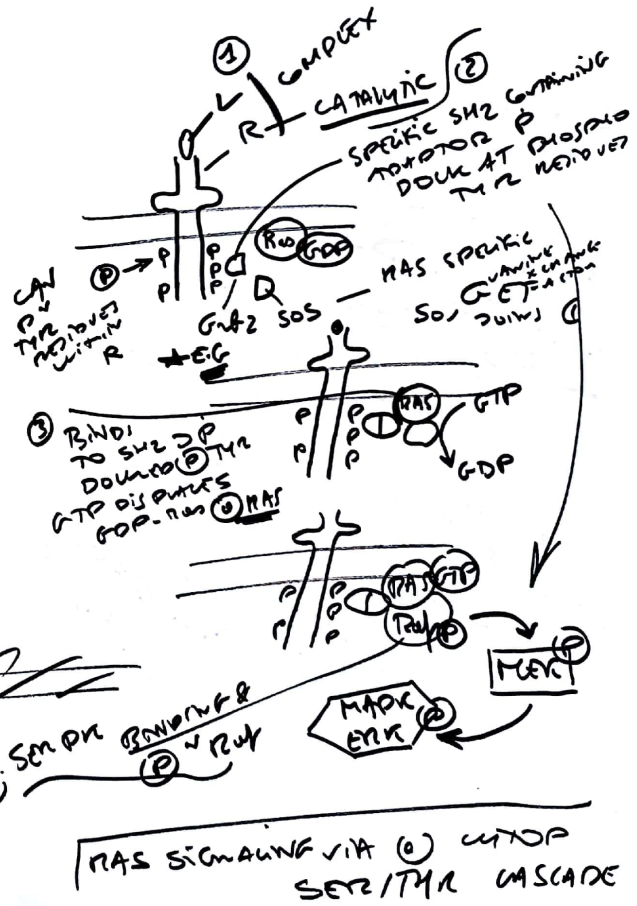
CAMP
EXCESS
H₂O
OUT

RAS G-P

- P^N → ~~then~~
 includes MAPKK = MEK
 with ~~MAPK~~ (P)
 MAPK = ERK



MITOGEN
 ACTIVATING
 PROTEIN



RAS SIGNALING VIA SH2-TRK CASCADE

EXCLUSIVE of product
 CAN NOT
 PRODUCTION THROUGH

REMAIN ACTIVE
 CAN NOT
 HYDROLYSE
 GTP → GDP
 TO INHIBIT

RAS GTP

MEMBRANE α
 NO
 ON INHIBIT
 RY GTP → UTOP
 TERMINATE
 GENETIC TRANSCRIPTION

PROXIMAL SKELETON
 MP & PROTEIN
 ASSEMBLY
 SPM/MP
 REULATE
 NUCLEOTIDE SYNTHESIS

SIGNAL TRANSDUCTION

USING RES
 FOODS

ONLY
 APART
 FROM
 SIGNALING
 CIRCUIT

HYDROLYSE
 GTP → GDP
 RELEASING
 IMMEDIATE
 INTERMEDIATE
 CAUSING
 SIGNAL
 TRANSDUCTION

INTERMEDIARY
 LINEAR PATHWAY
 HGF
 CATALYTIC R