

Chronobiologie

I - Echelles du vivant.

II - Paramètres cycliques
1 - Exemples
2 - rétroaction

III - "Puls" Chronobiologie

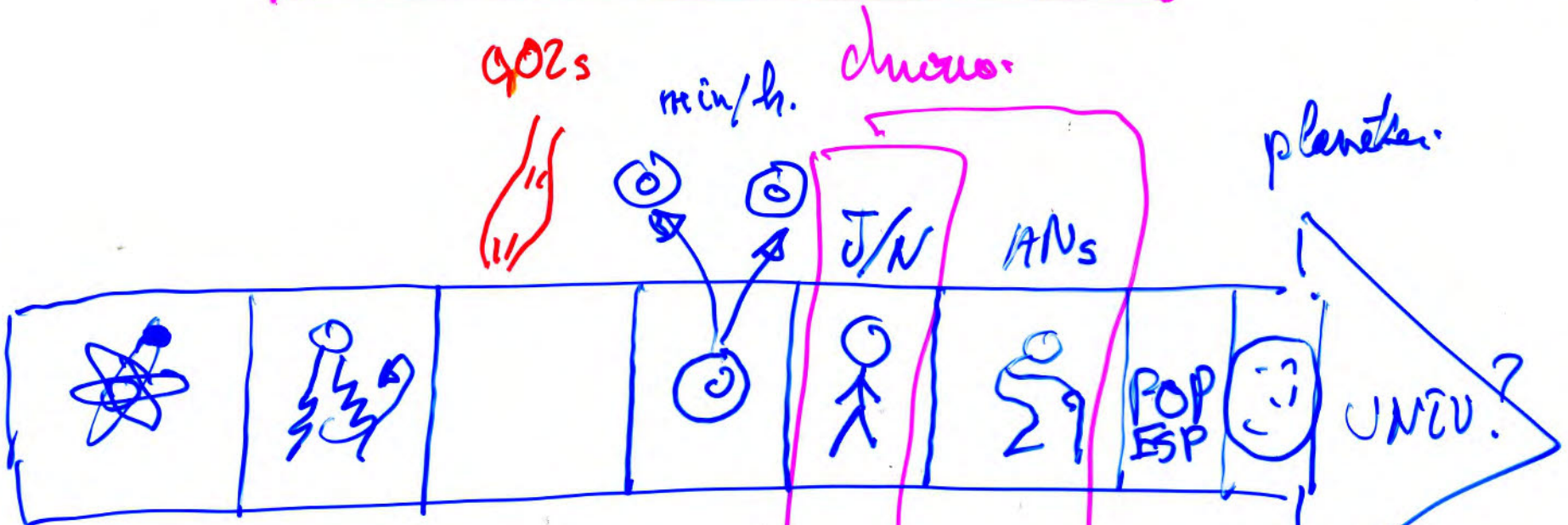
IV - Mécanismes Chronobiologie
1 - "L'horloge"
2 - Synchroniseur

V - Chronopathologie + - pharmacol.

28 Dec 2012 - 01

R.L.C.

28/3/02-02



ps

ns

♥
S

2ms

seuils

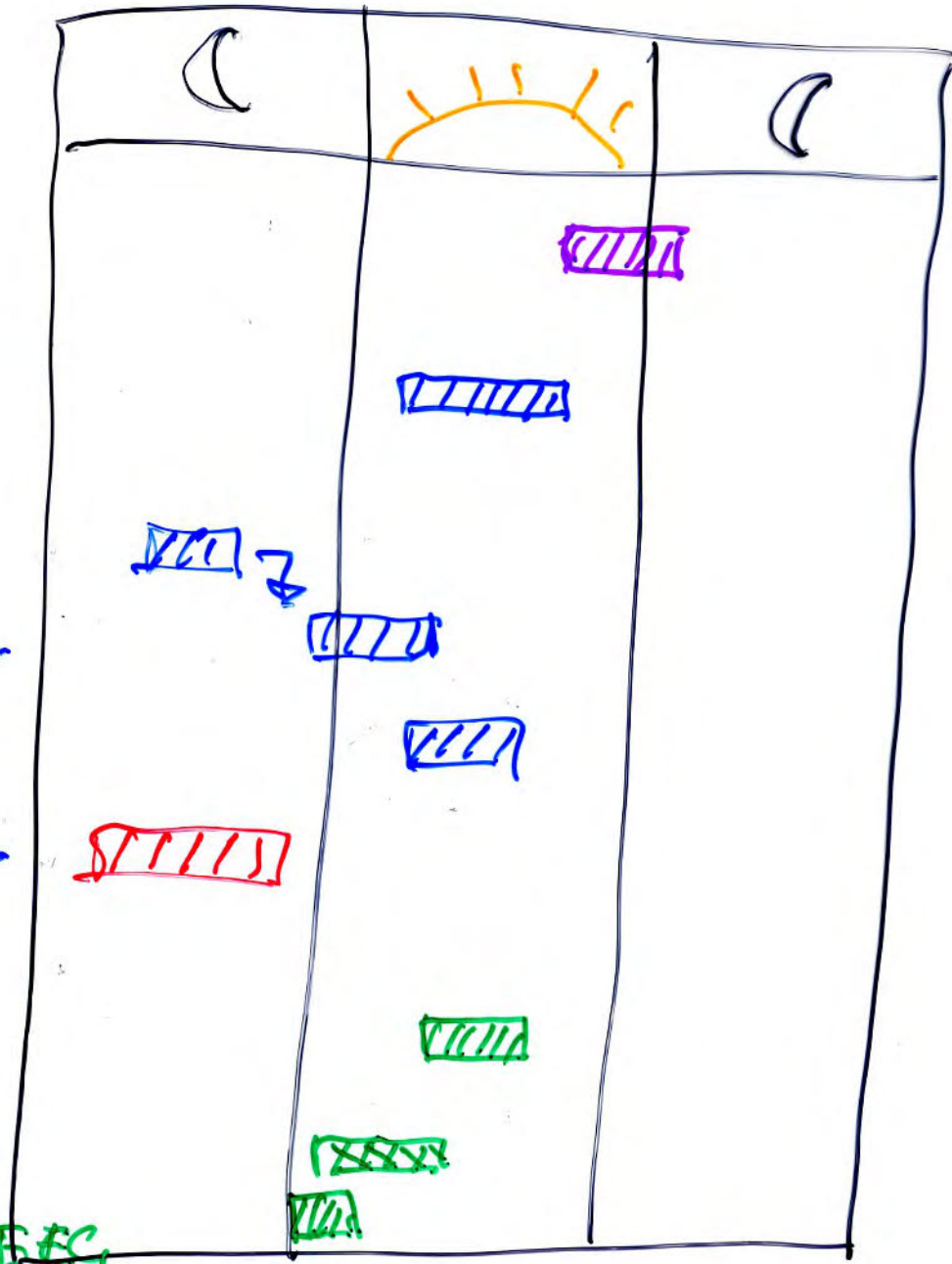
Echelles du Vivant

Exemples de
Variables
circadiennes

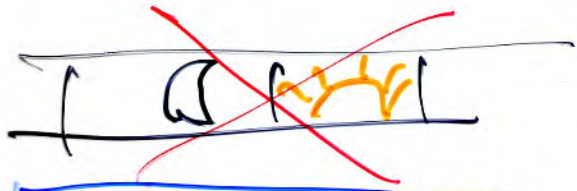


ACTH
CORTISOL.

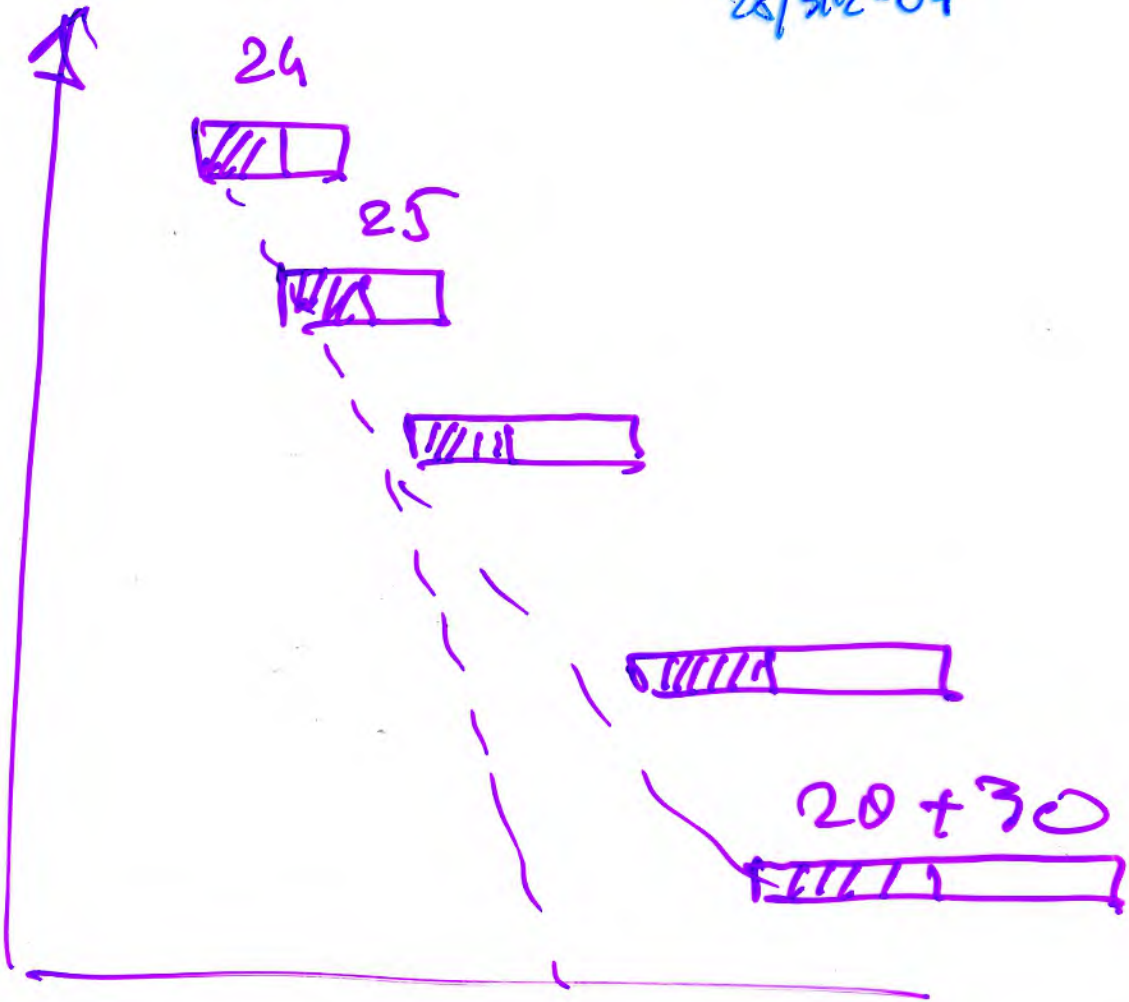
(insuline) INS
Mélatonine.

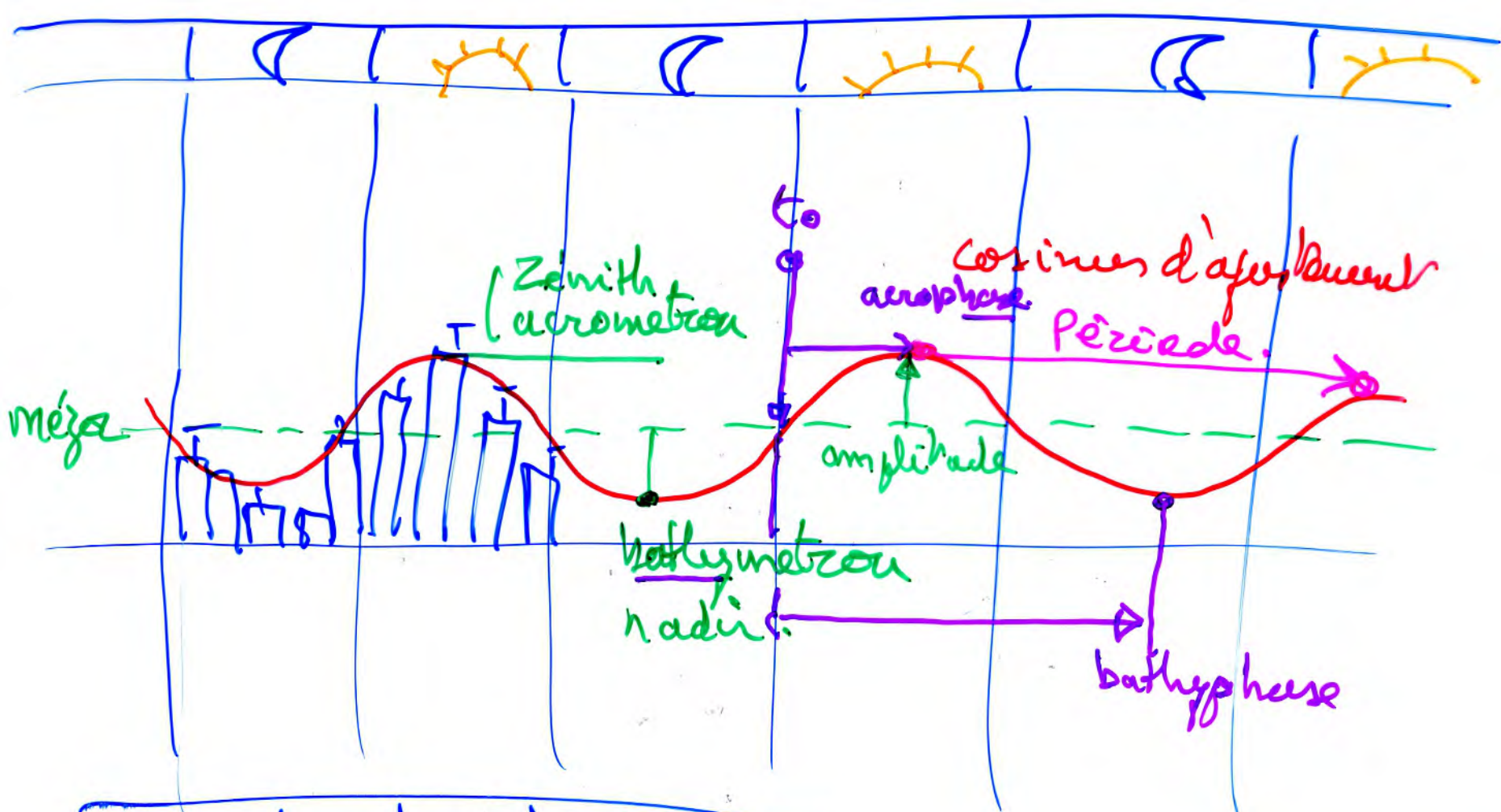


28/3/02-04



Effet de l'isolement



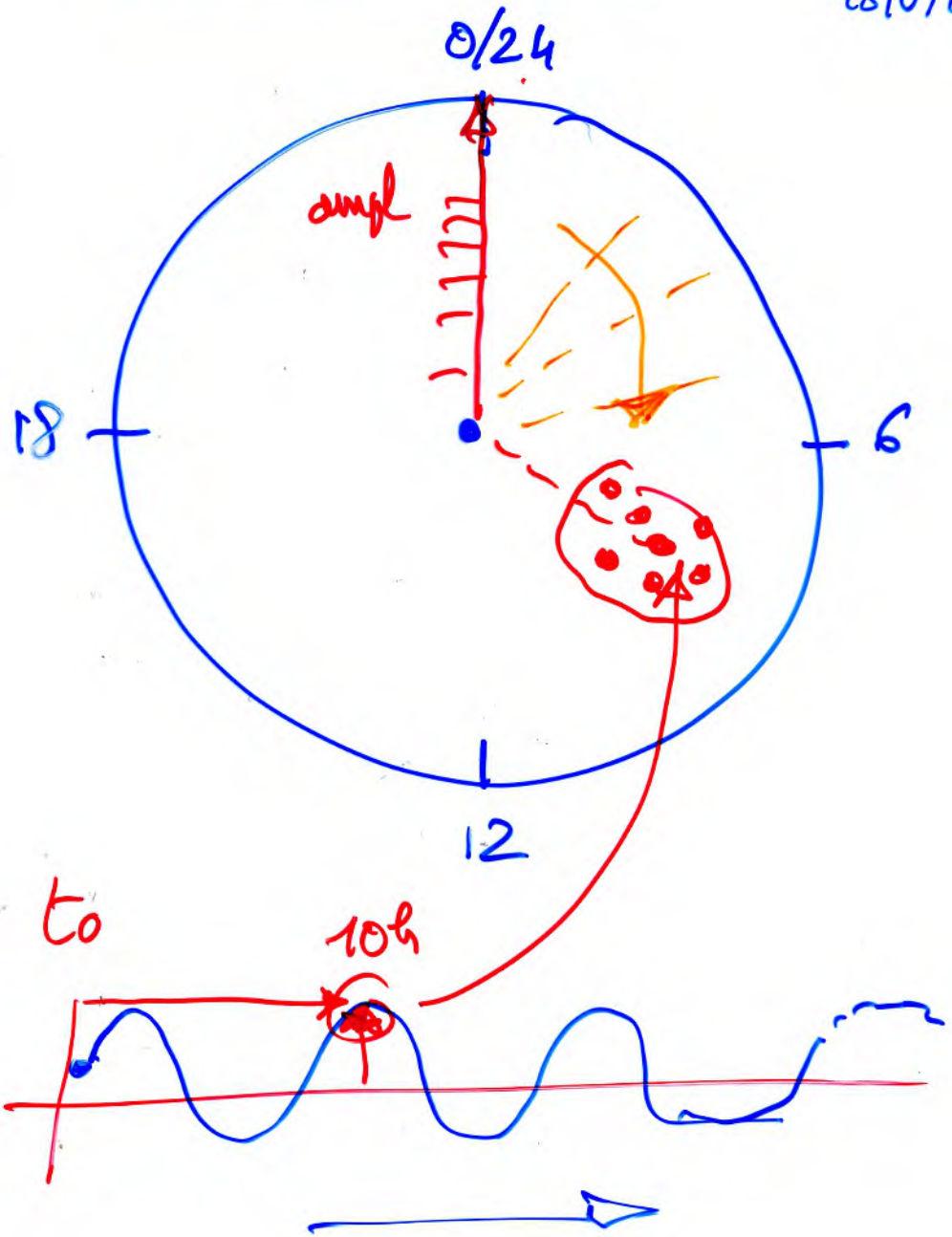
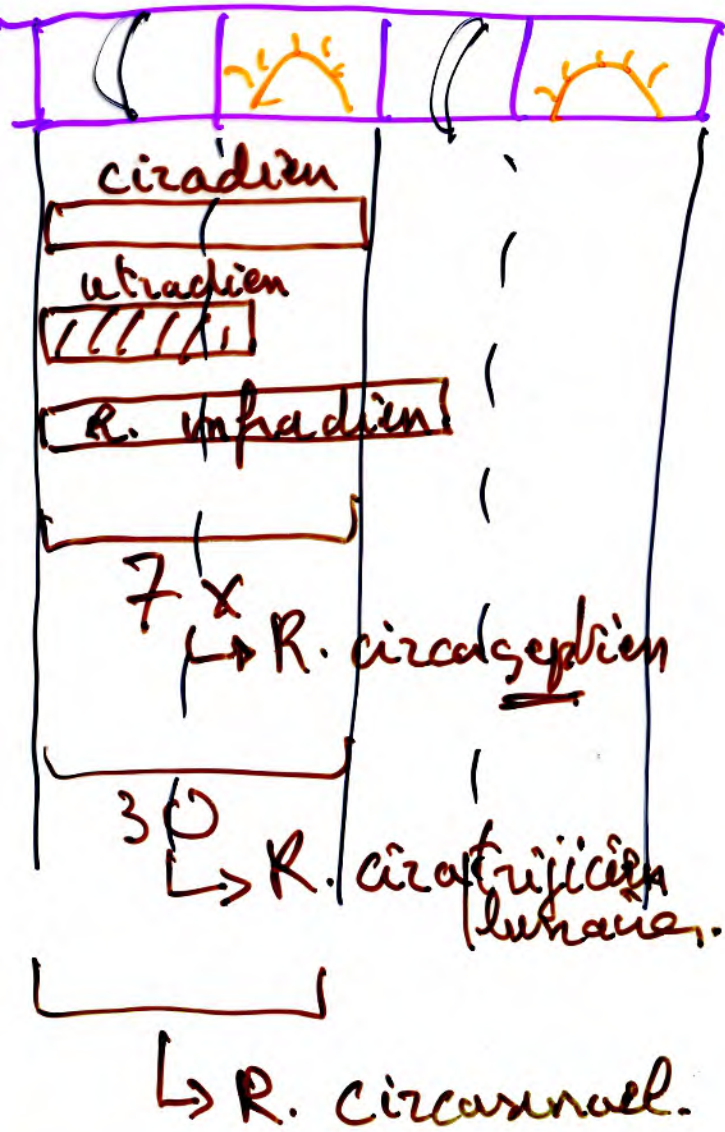


Paramètres chronobiologiques

28/3/12-05

Méthodes Cosinus.

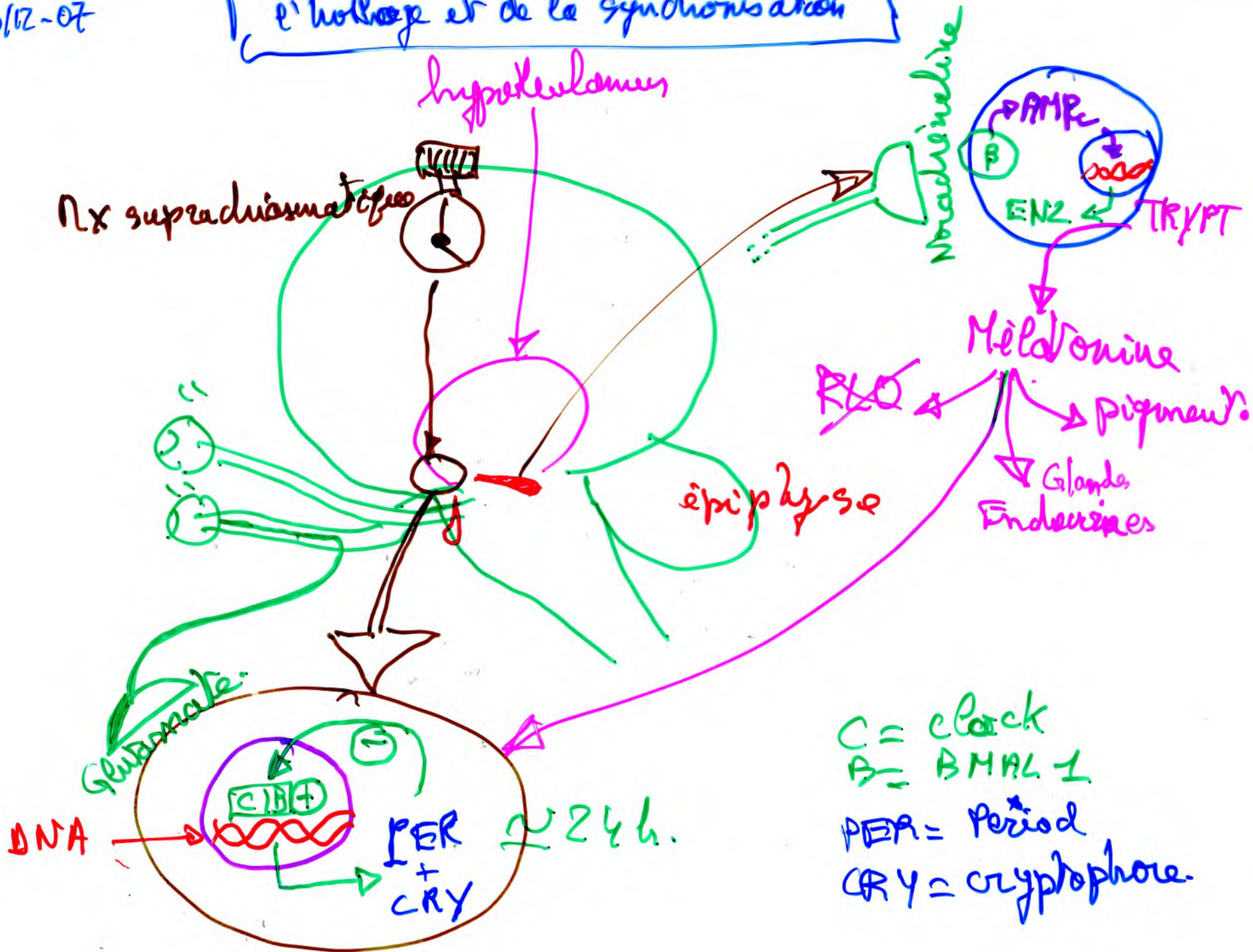
28/07/12-06



Expression des Rythmes

28/3/17-07

Mécanismes moléculaires de l'horloge et de la synchronisation



C = clock
 B = BMAL1
 PER = Period
 CRY = cryptochrome.

APNÉE

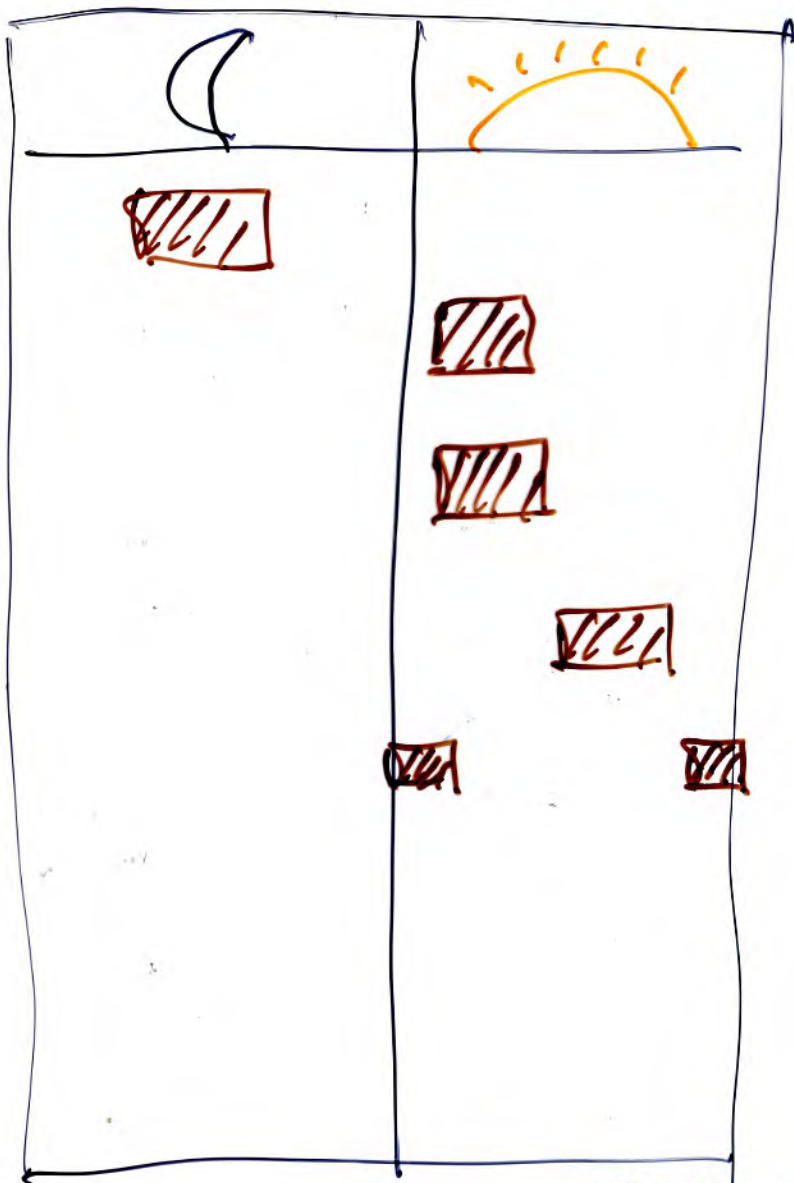
MIGRAINE

INFARCT.

DOULEURS.

Epilepsie.

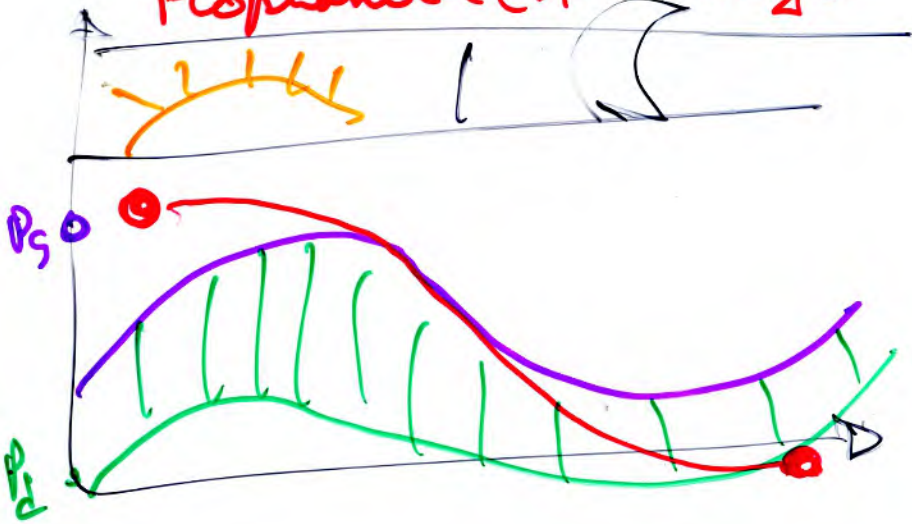
Exemples de
détermination
circadienne de
maladies



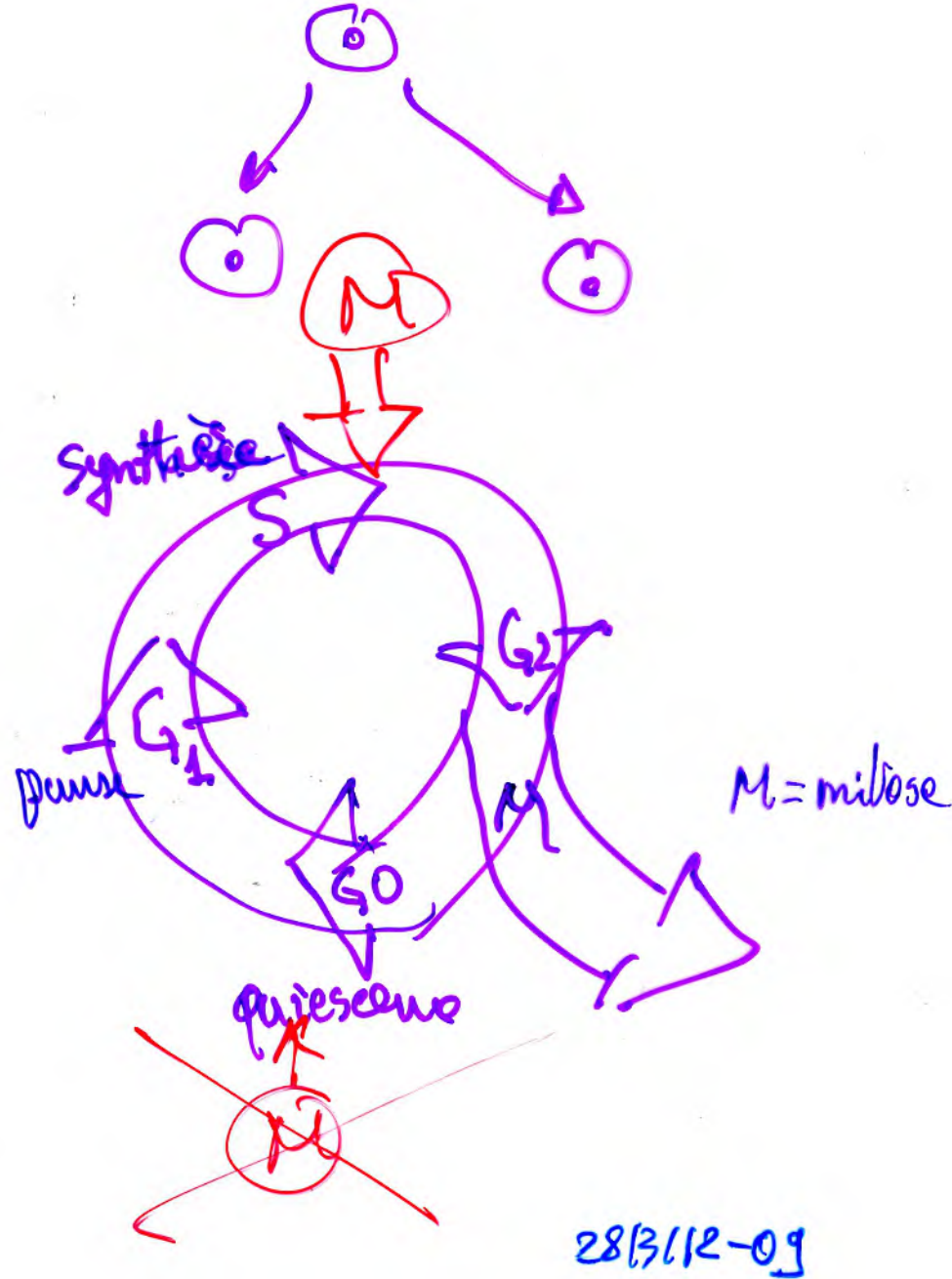
28/3/12-08

HTA

β -bloquant
Propranolol (Arblocaudyl)



principaux concepts
en
chronopharmacologie

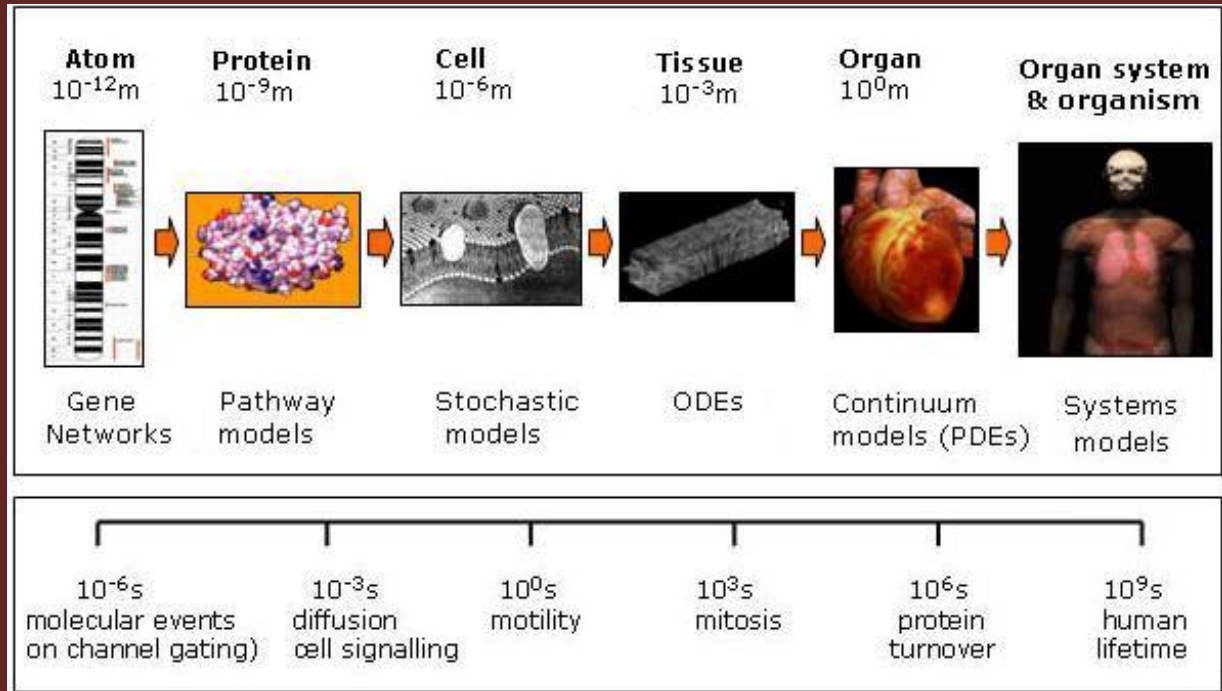




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Les Echelles du Vivant



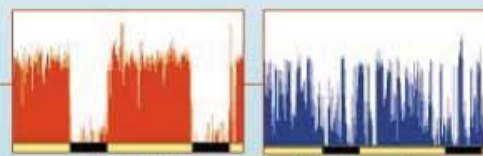
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Les Rythmes du Vivant

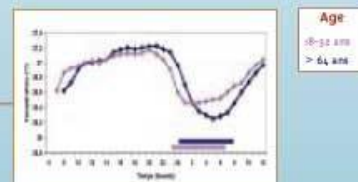
Notre corps a des rythmes naturels

Au cours de 24h, l'activité, la température et la tension artérielle présentent des variations régulières. Ces rythmes peuvent être altérés en cas de maladie ou au cours du vieillissement.

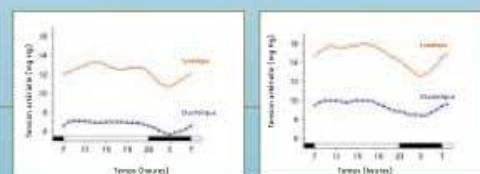
Cycle
activité-repos



Température
corporelle



Tension
artérielle



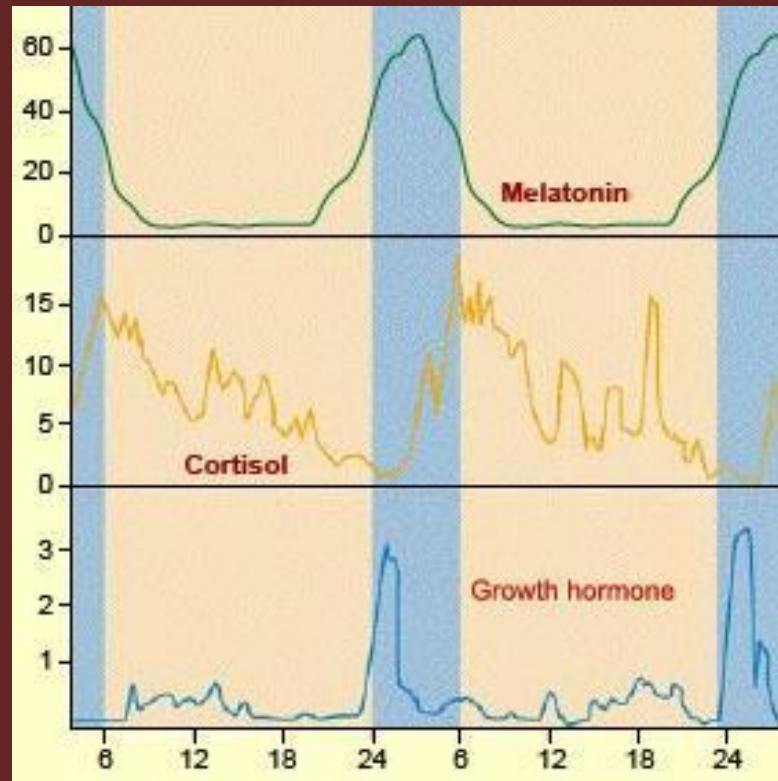
LA CHRONOBIOLOGIE ETUDIE LES RYTHMES BIOLOGIQUES
ET LEURS IMPLICATIONS POUR LA SANTÉ





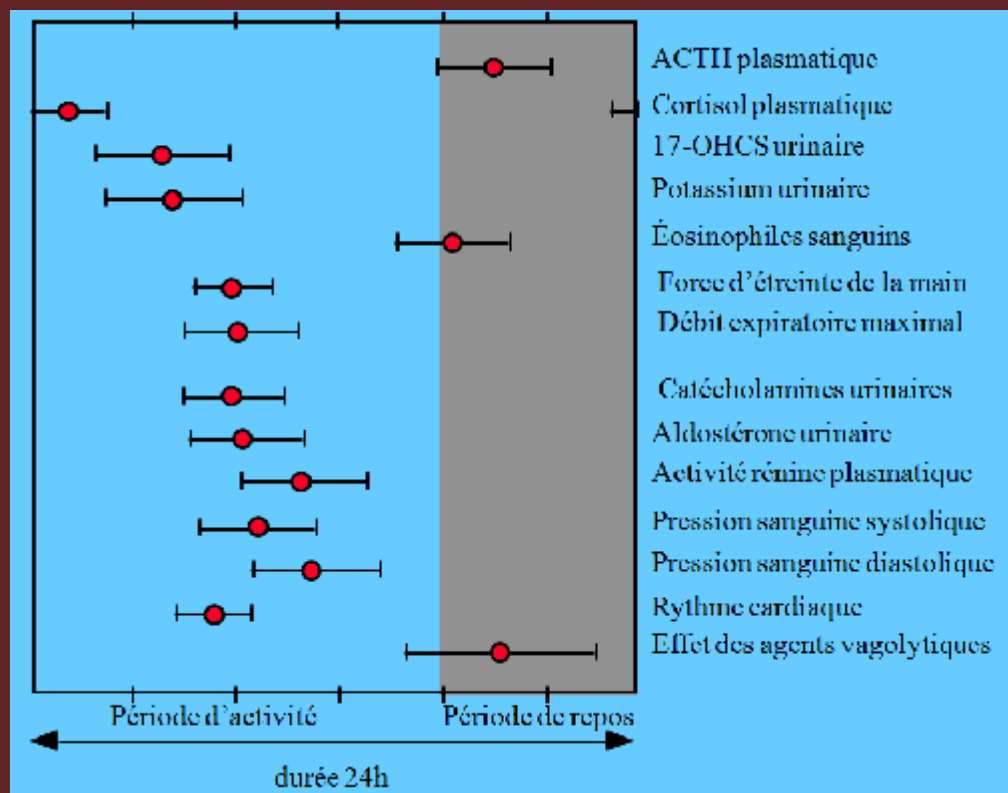
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Exemples
de Cycles



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Exemples de Cycles



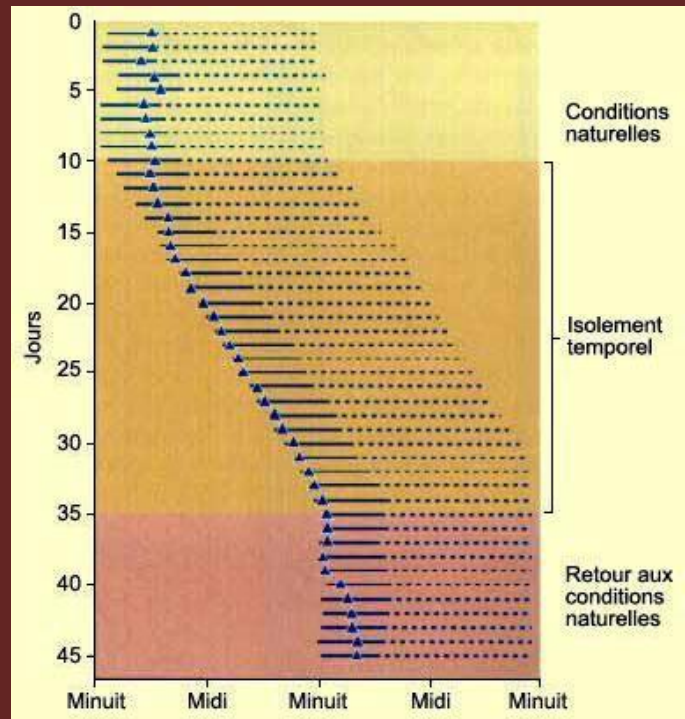


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Effet de l'isolement

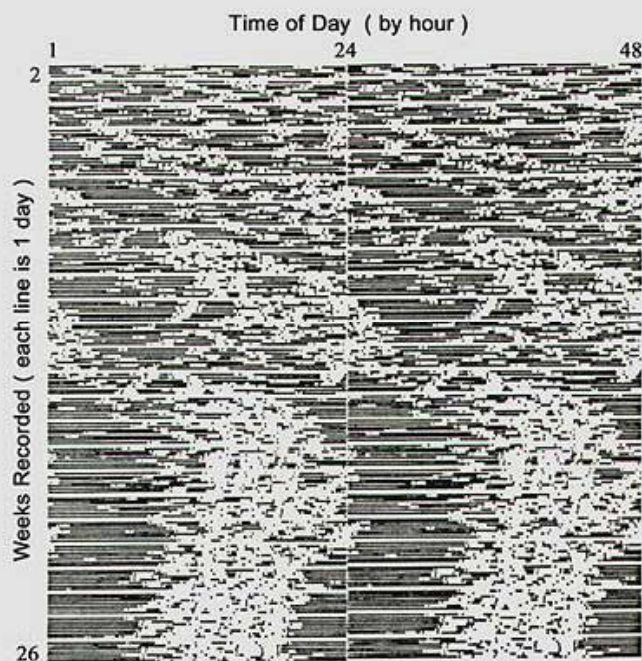


Le jeune
spéléologue
M. Siffre en
1962



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Maturation des Rythmes Circadiens



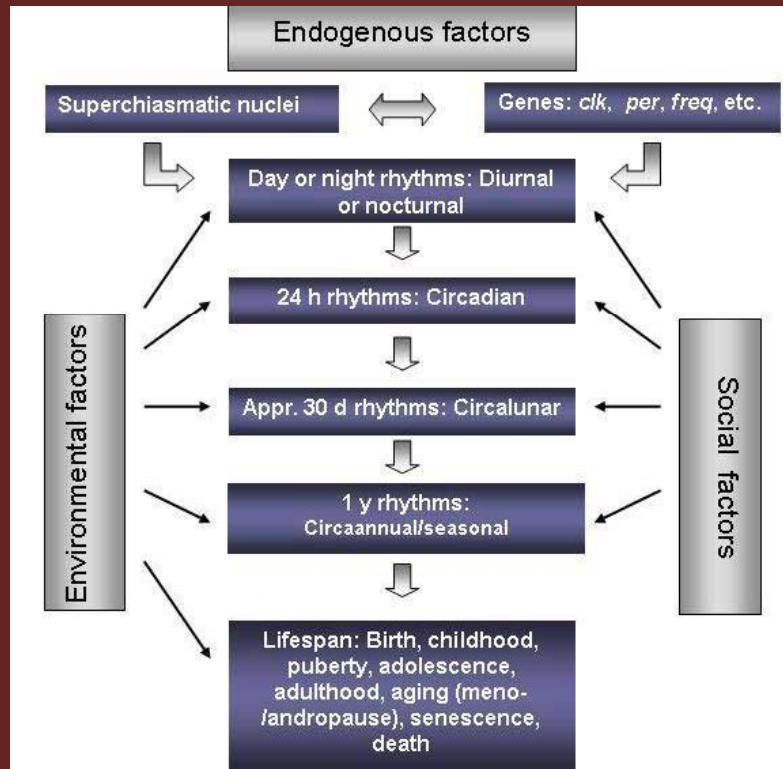
The sleep-wake record of a human baby. The record is double plotted so that the horizontal axis is 48th; the record extends from the second to the 26th week after birth.





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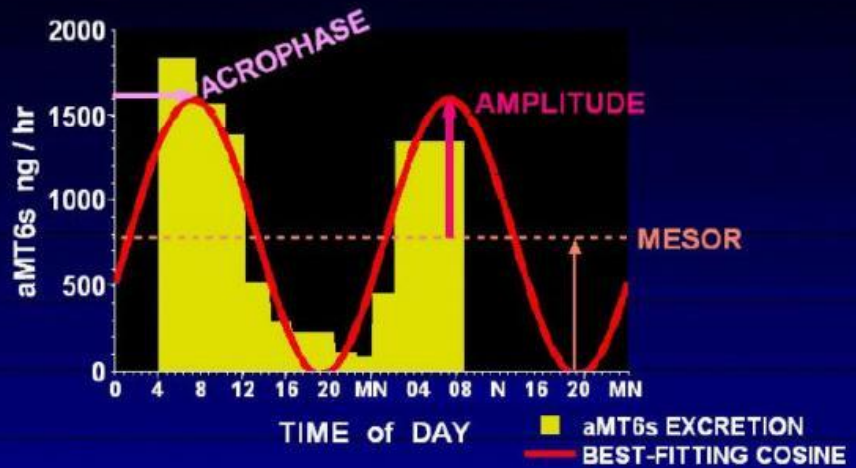
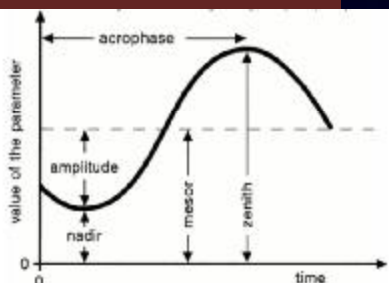
Les Rythmes du Vivant



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Paramètres Chronobiologiques

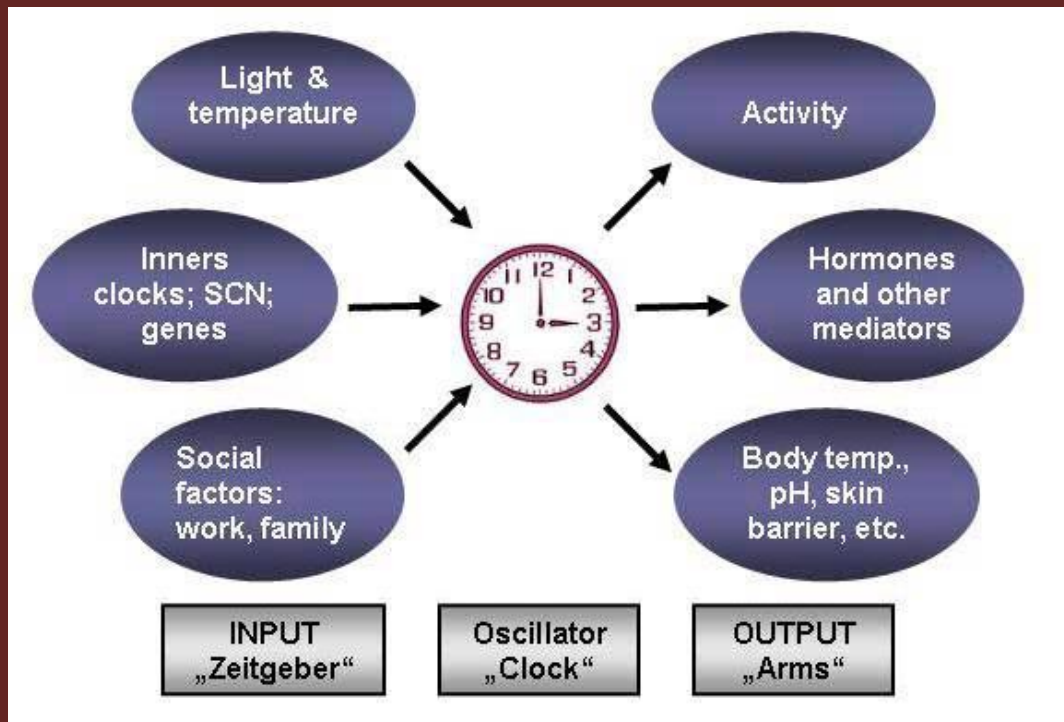
COSINE - FITTING to ESTIMATE ACROPHASE, AMPLITUDE, and MESOR





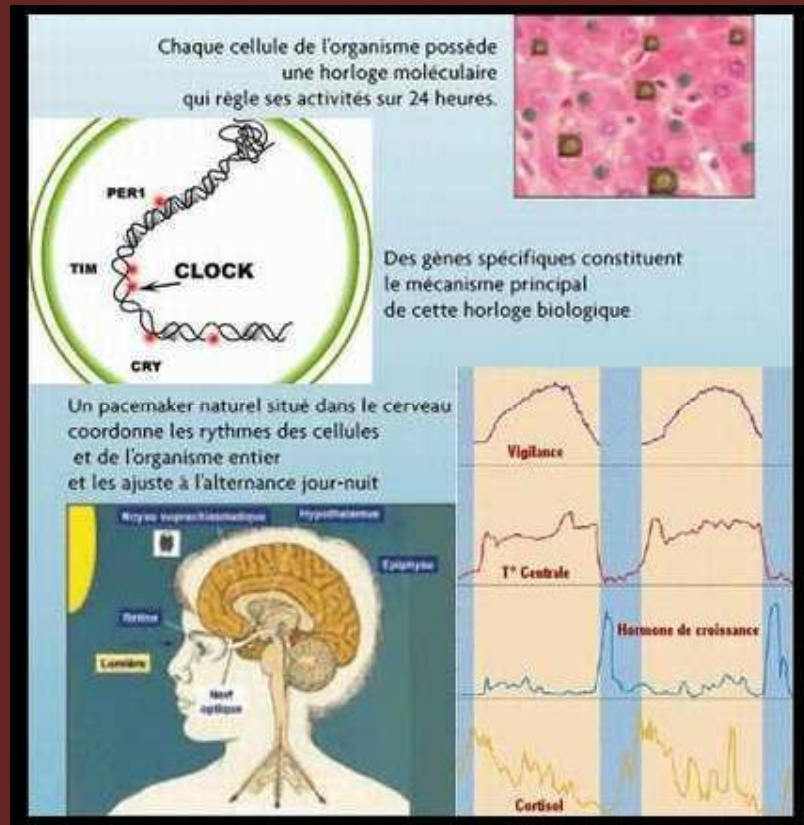
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Facteurs des Rythmes Circadiens



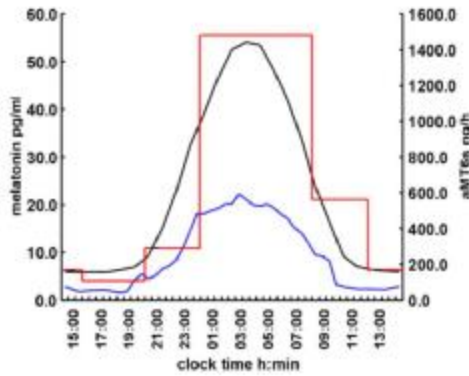
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Mécanismes Moléculaires

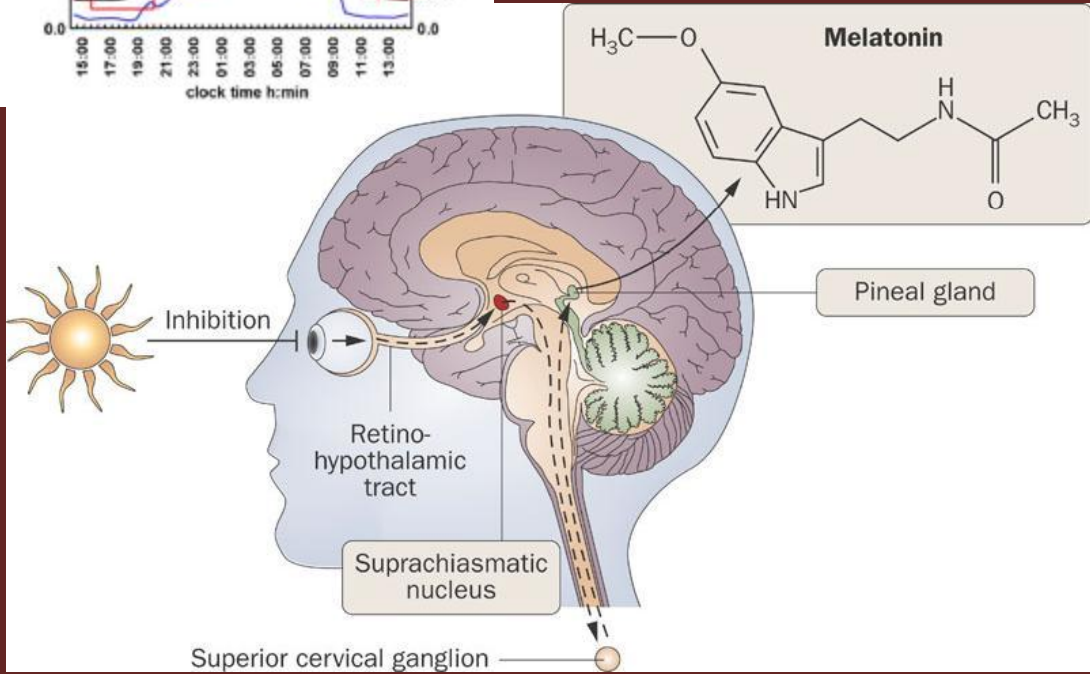




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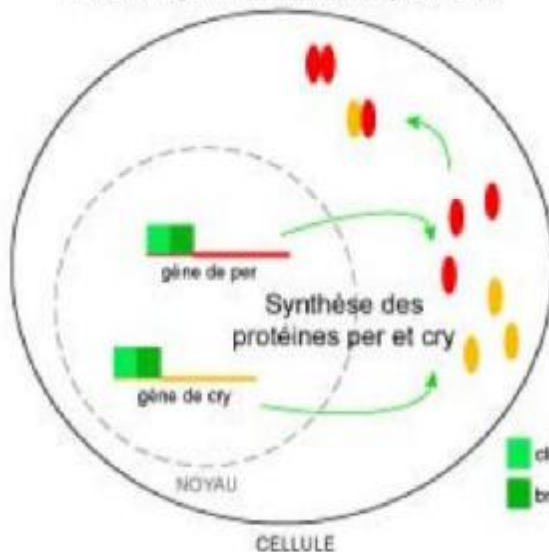
Mécanismes Cérébraux



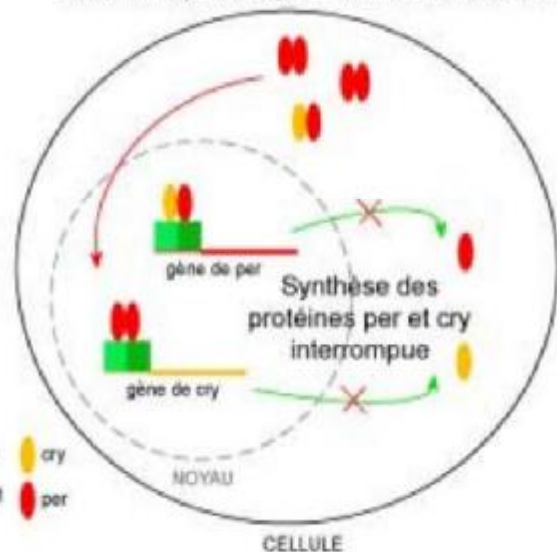
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Mécanisme Moléculaire de l'Horloge

Dans un premier temps,
la fixation de clock et bmal1 sur les gènes de per et cry
induit la synthèse des deux protéines



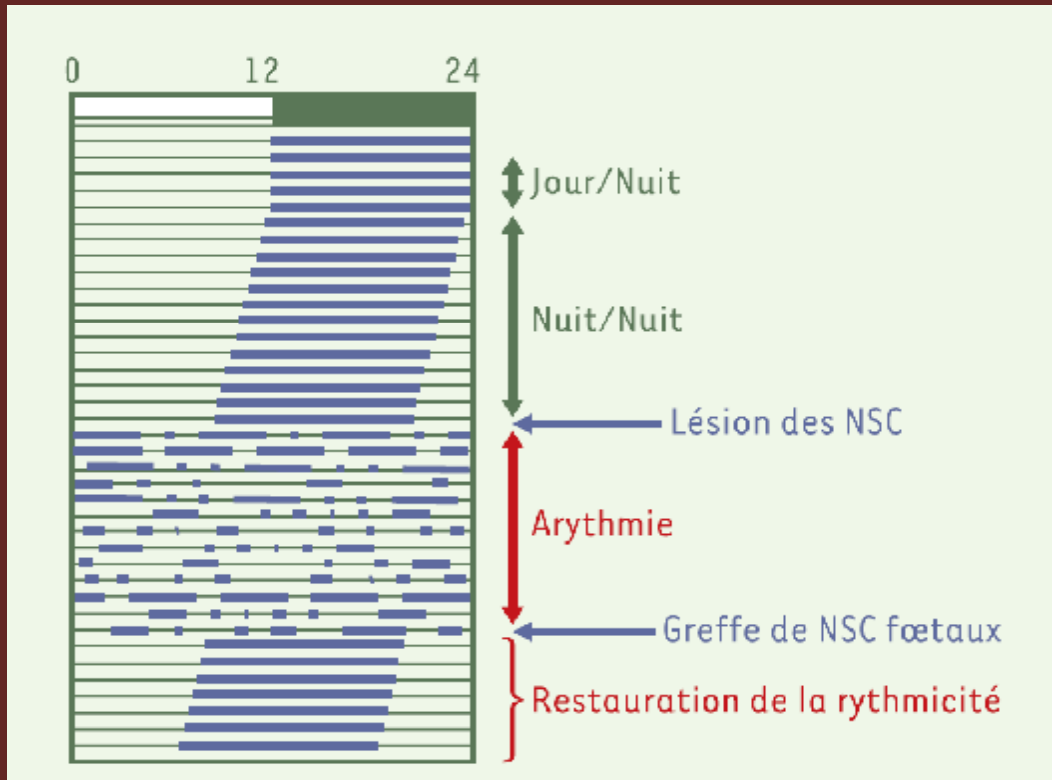
Dans un second temps,
l'association de per et cry suivie de leur retour
dans le noyau bloque l'activité de clock/bmal1





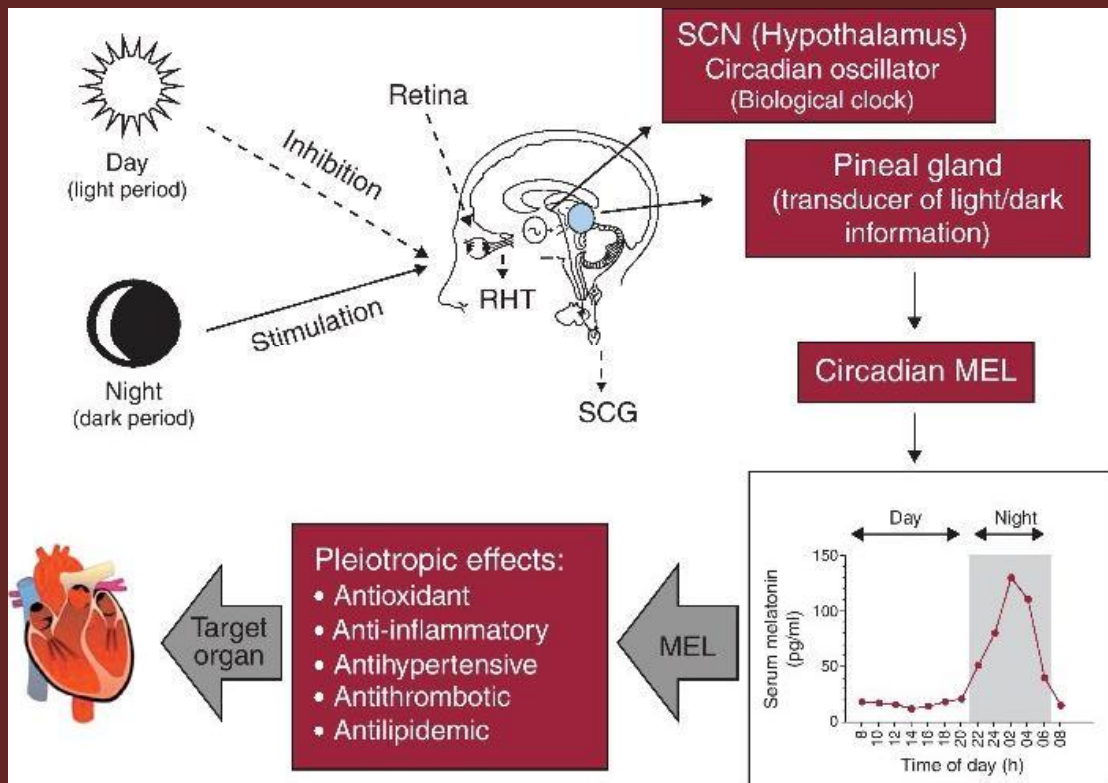
Pierre ATHIAS

Indispensable noyau Supra-Chiasmatic



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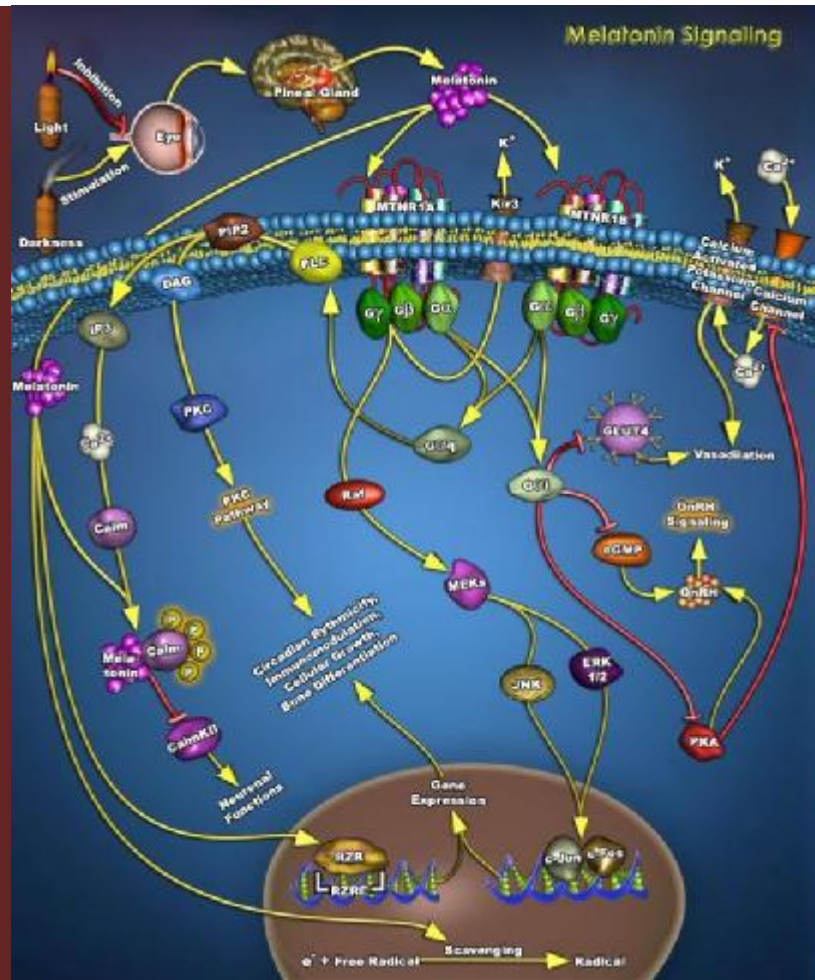
Rôles de la Mélatonine





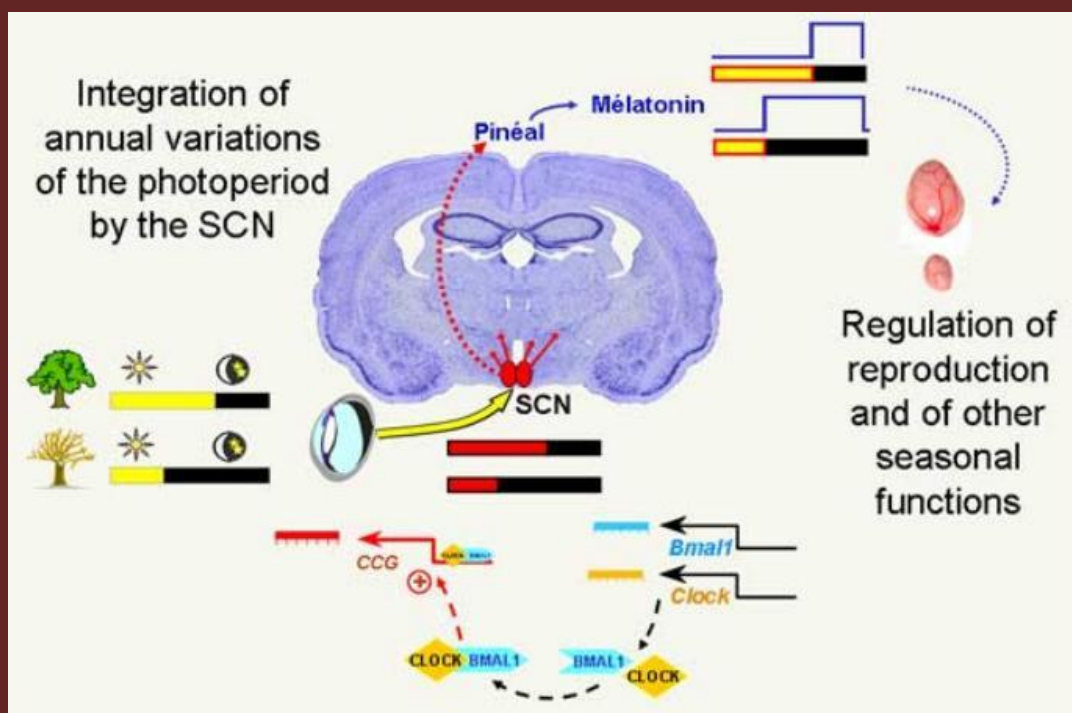
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Voies de Signalisation de la Mélatonine



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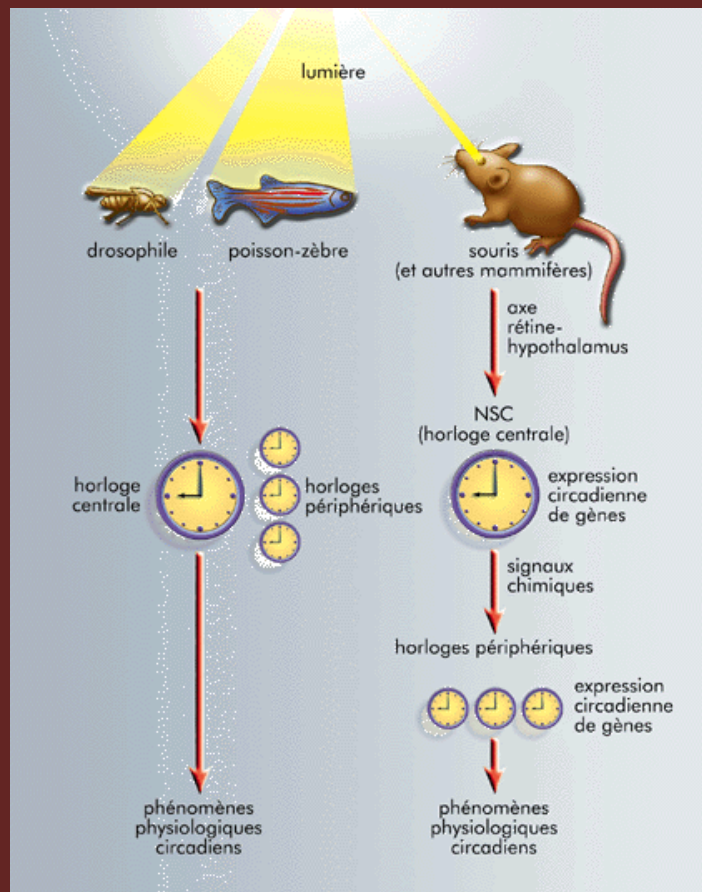
Principe des Variations Saisonnières





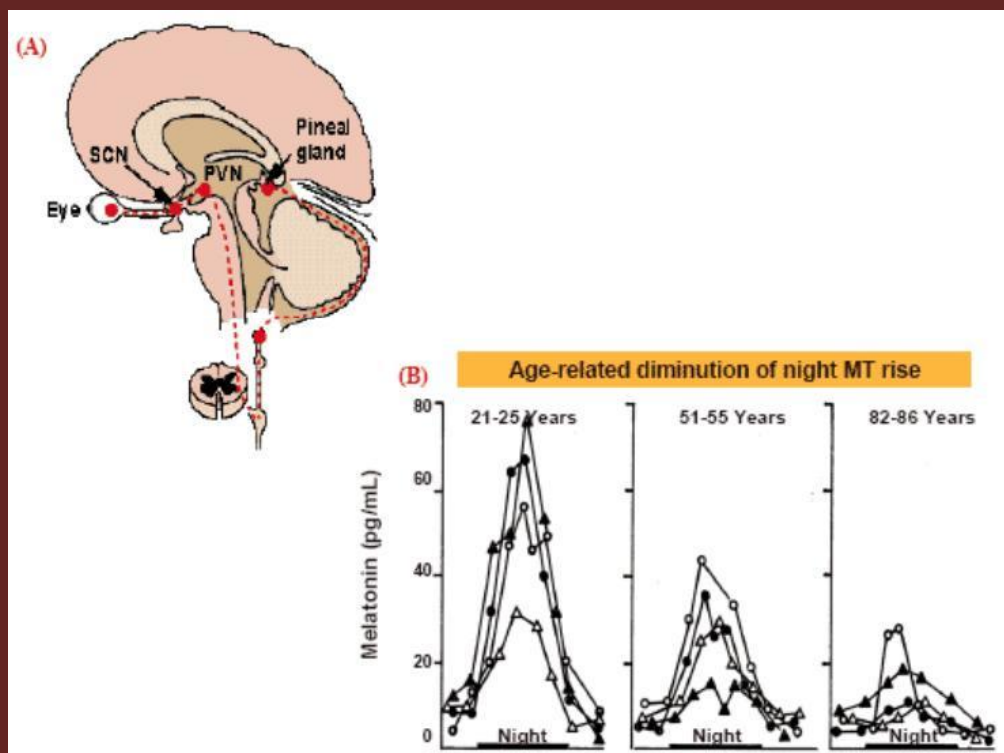
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Variations Spécifiques



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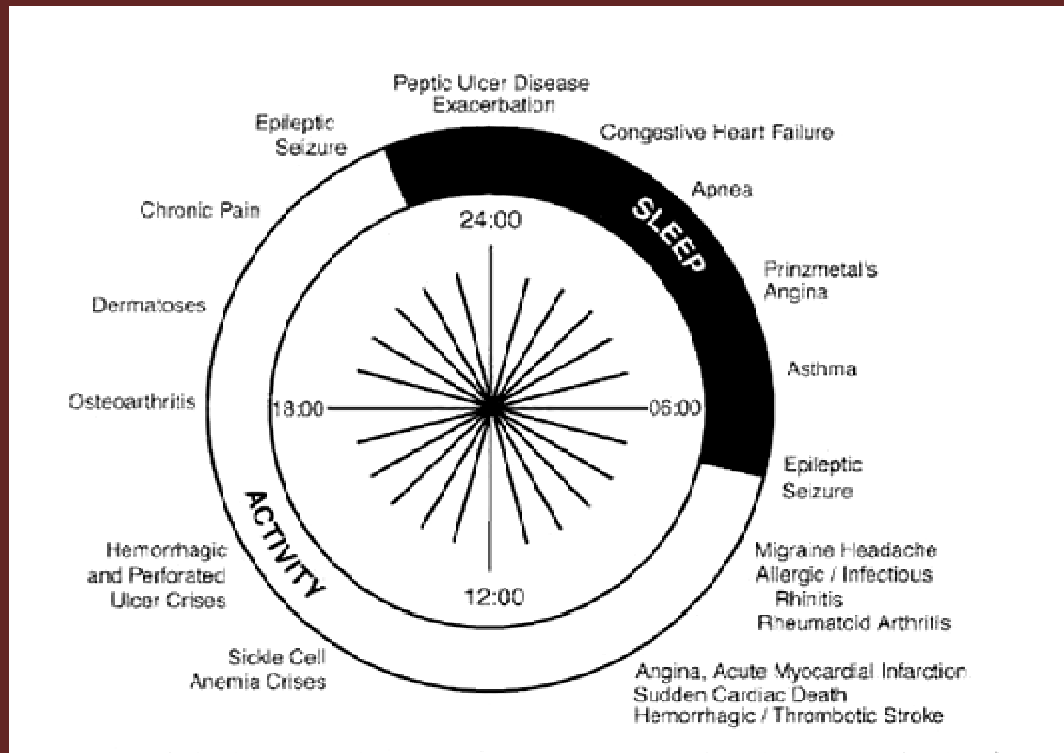
Effet du Vieillissement





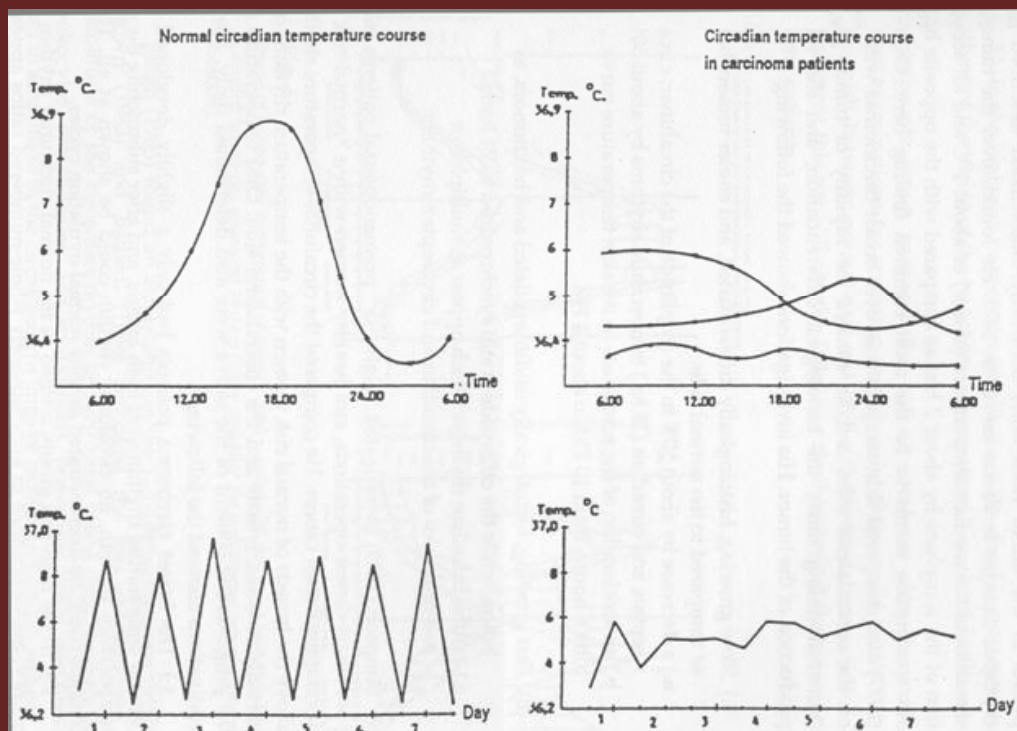
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Dépendance Circadienne des Pathologies



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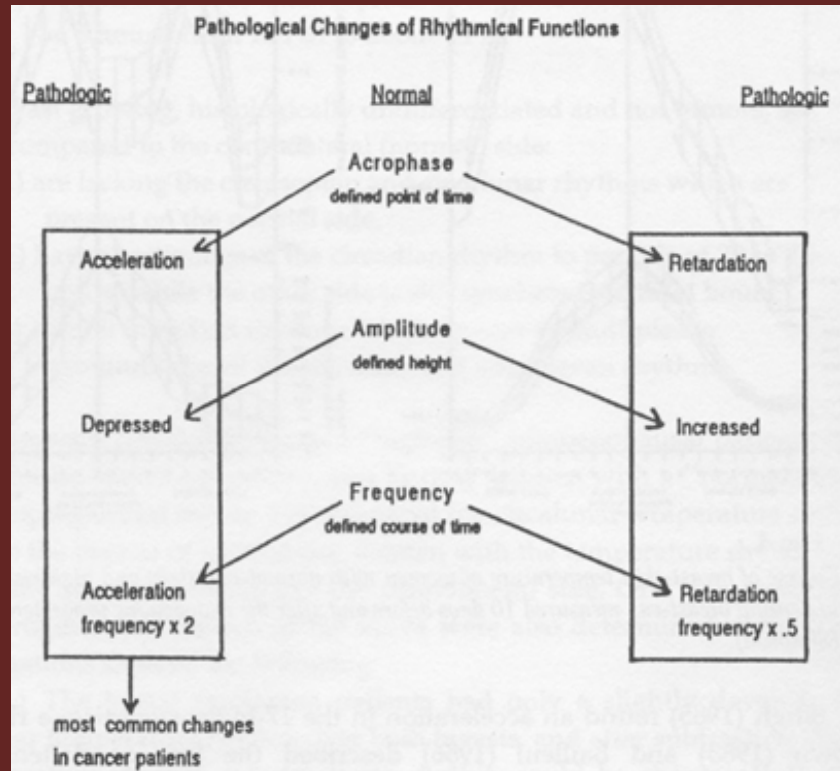
Effets des Pathologies sur les Rythmes Circadiens





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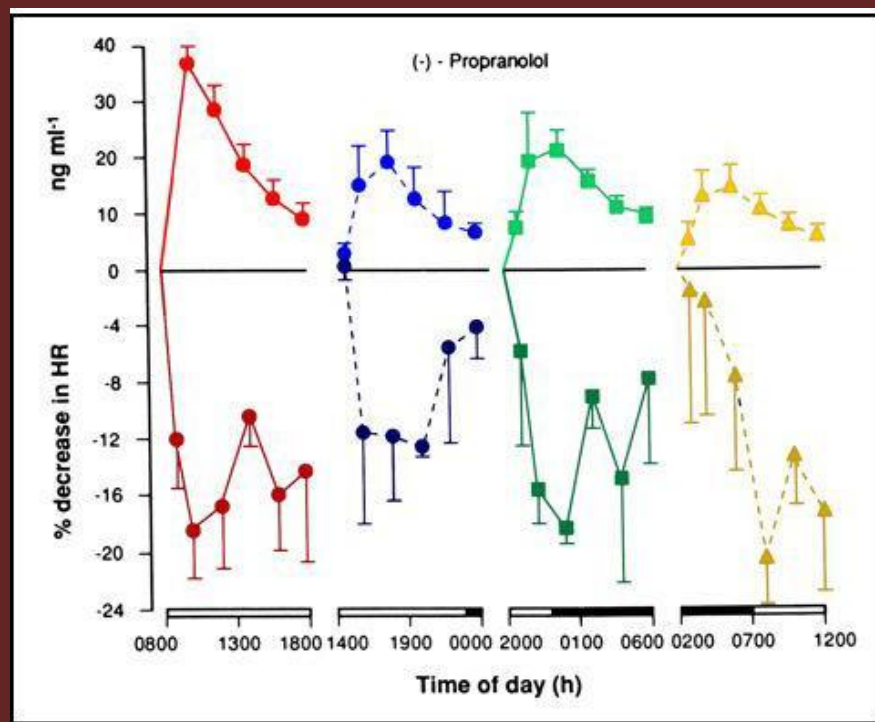
Effets des Pathologies sur les Rythmes Circadiens



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Exemple de Chronopharmacologie

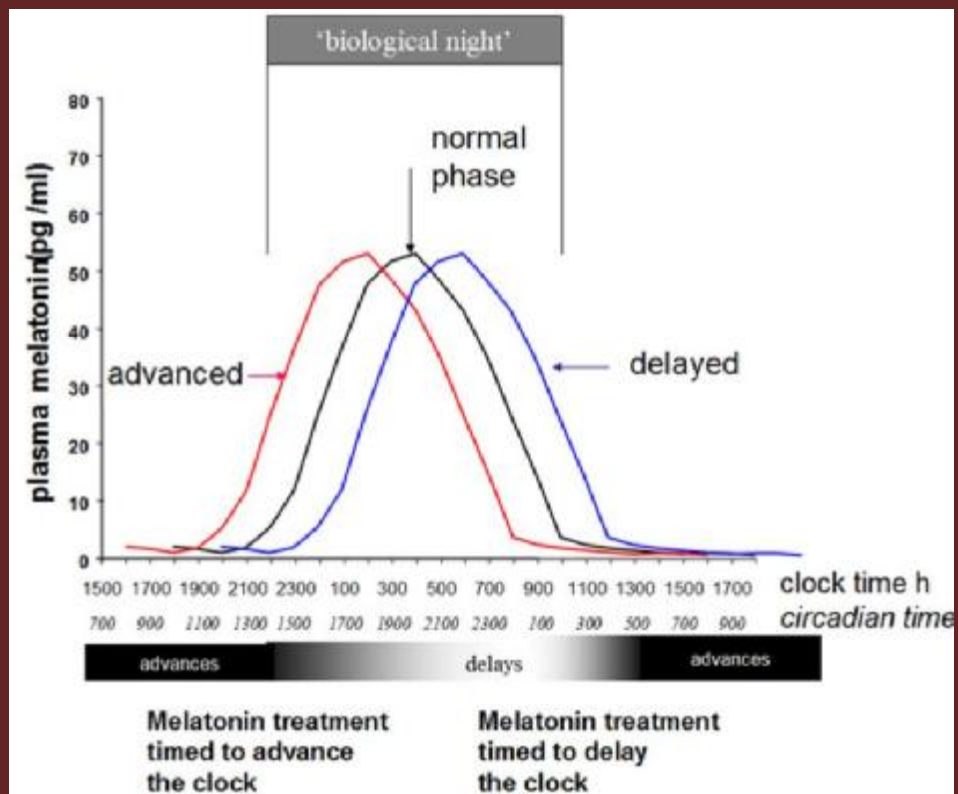
- Propranolol:
b-bloquant
(Avlocardylâ)
- HR (heart rate):
Fréquence cardiaque





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« Recalage » d'horloge



Pierre
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<http://pathias.free.fr/cours/UTB>



physio@pathias21.fr

