



THE MITOCHONDRIAL CONNECTION:

BLUE LIGHT, EMF & WHY SLEEP IS BEING DESTROYED



Quantum Sleep

SLEEP. HEAL. RISE. THRIVE.

JOSHUA ROSENTHAL, MD

MY JOURNEY THE TO LIGHT...



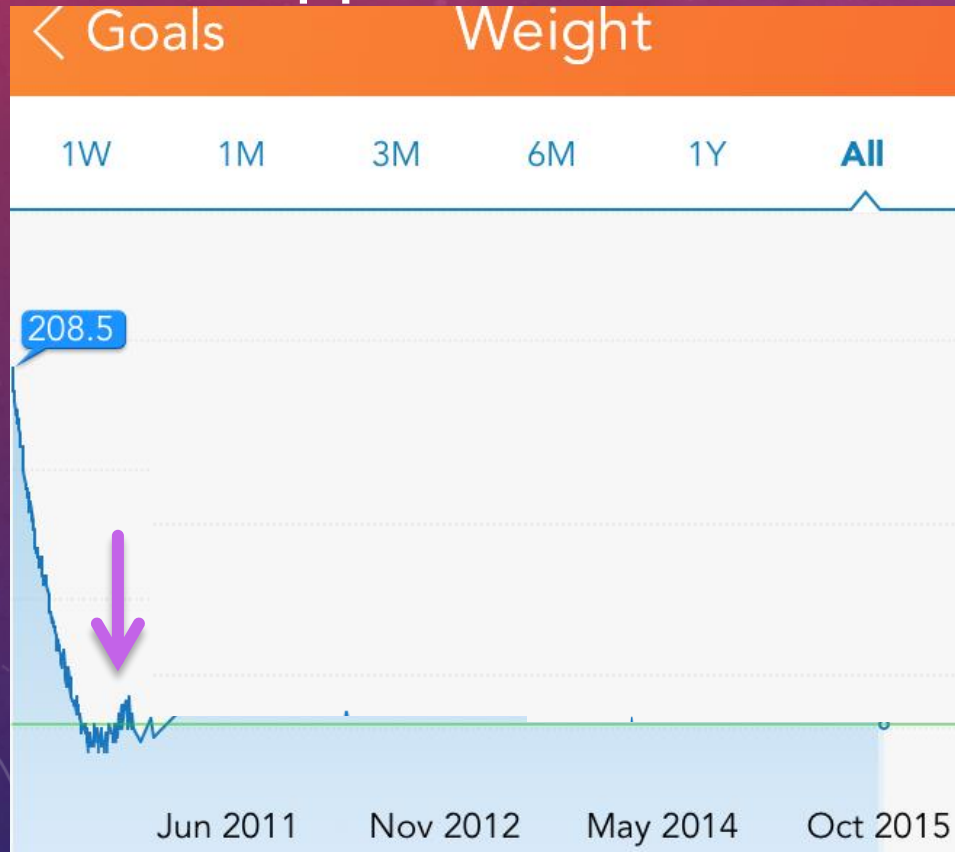
SO WE'VE BEEN TOLD OVER AND OVER AGAIN...



3500 calories = 1 pound

CALORIES IN/ CALORIES OUT MYTH

- Lose it App on iPhone



CURIOSITY...

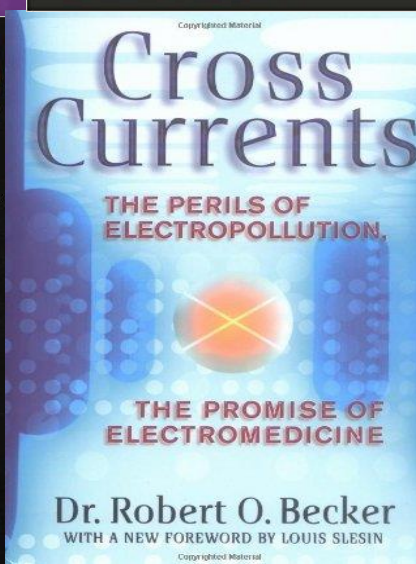
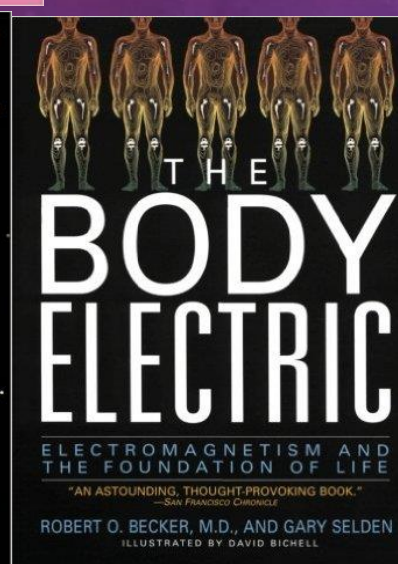
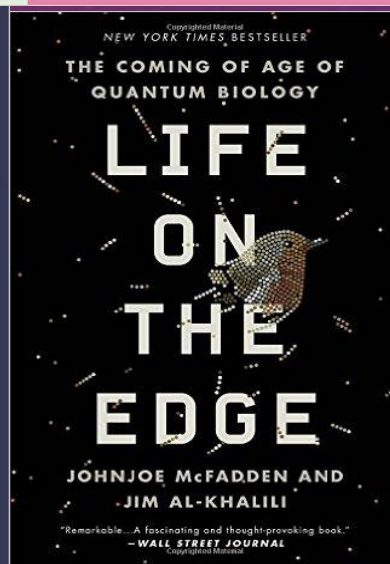
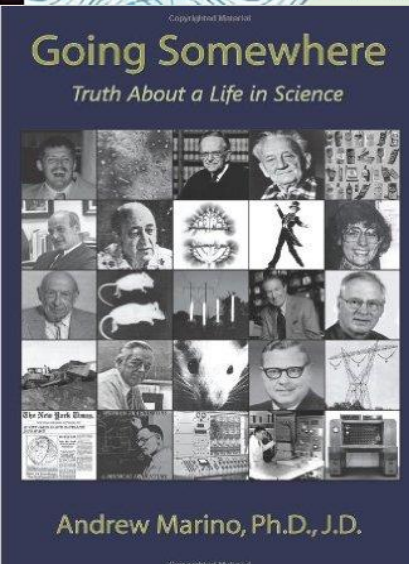
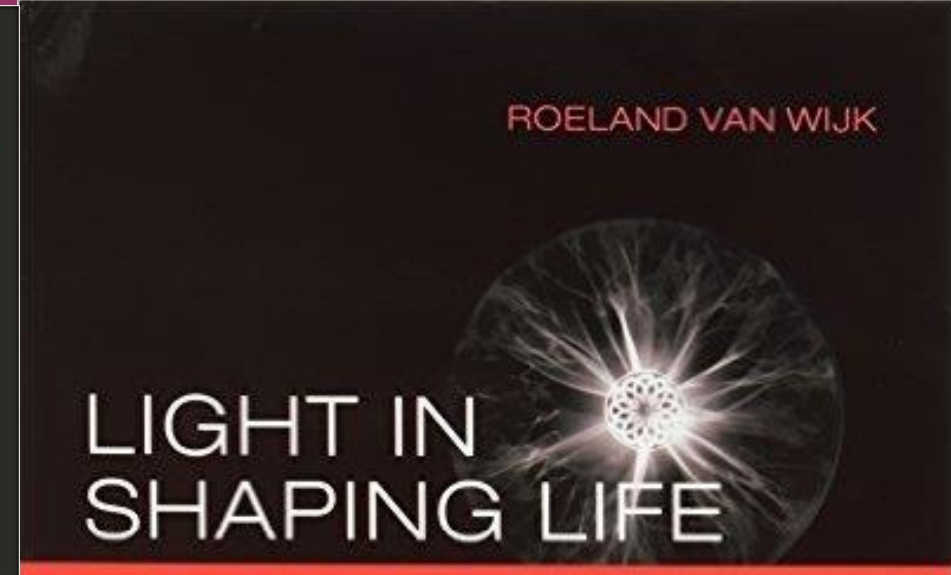
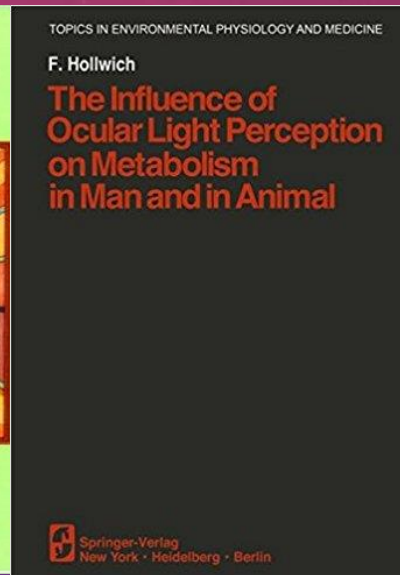
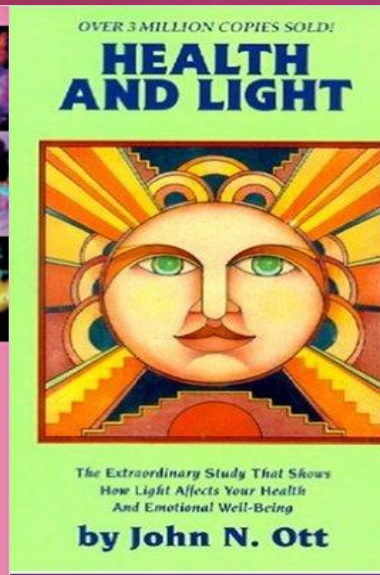
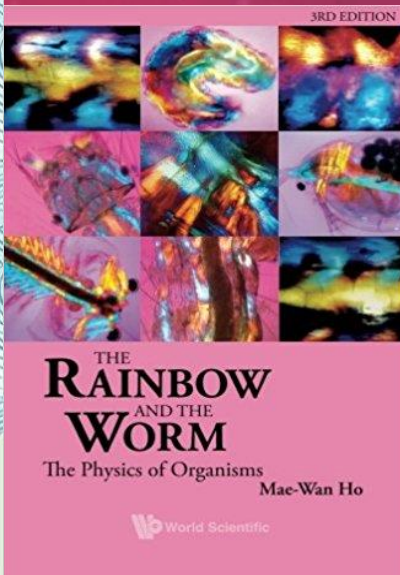
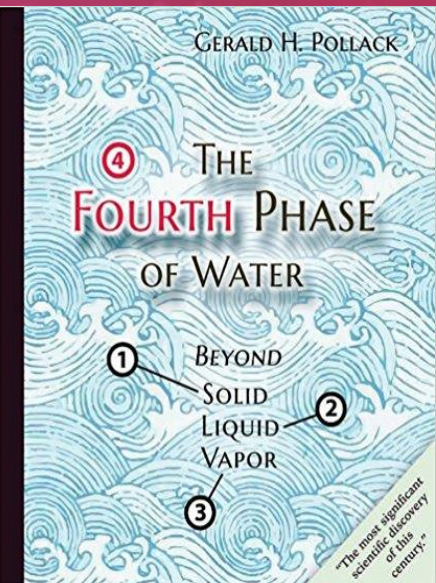
A RANDOM YOUTUBE VIDEO & 10 DOLLARS



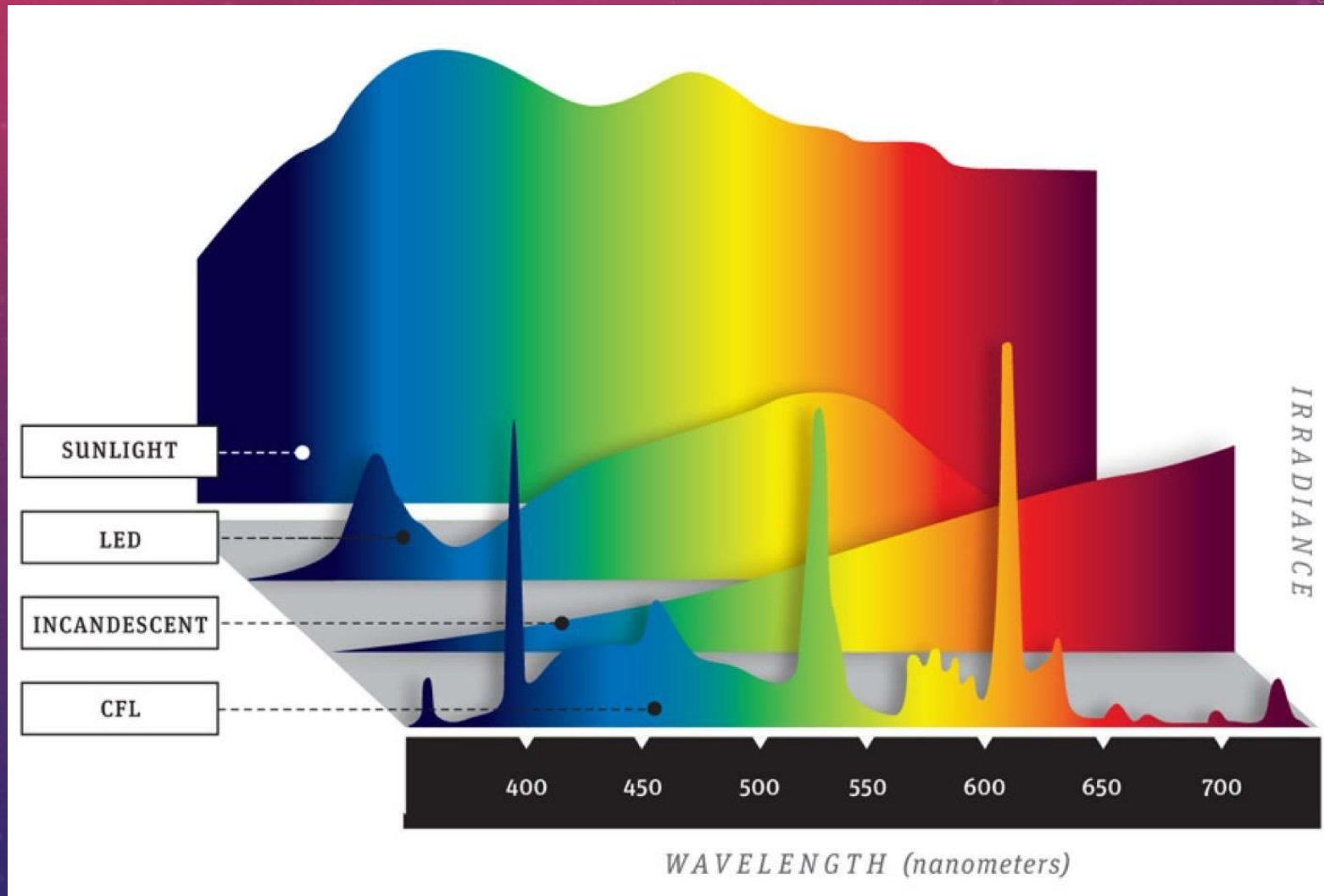
LIGHT INSTRUCTIONS FOR WEIGHT LOSS



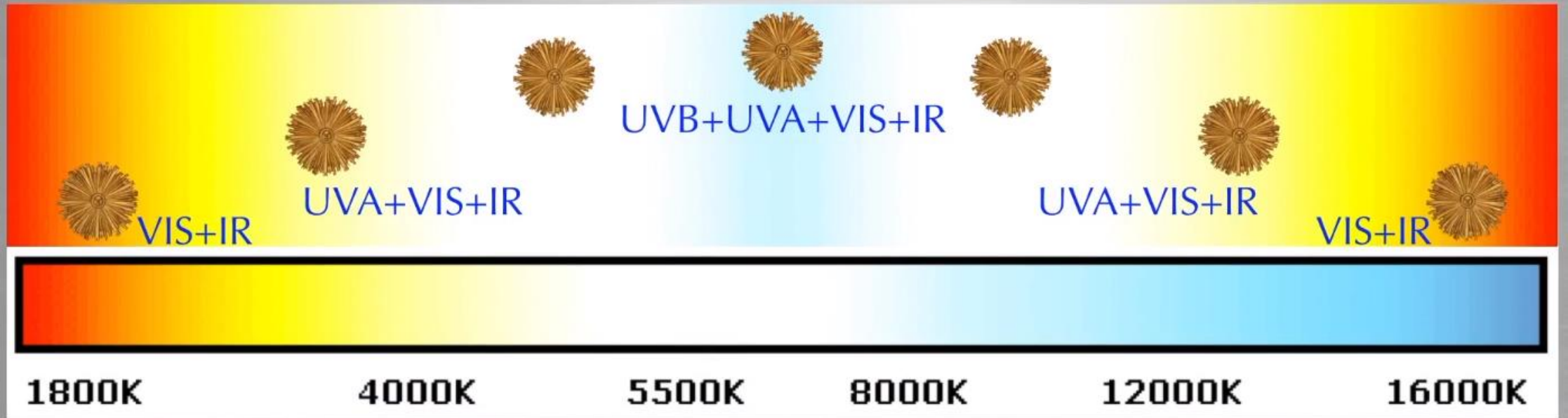
THE SCIENCE FOR THIS ISN'T NEW, WE'VE GOT TO CONNECT THE DOTS!



NOT A SUBSTITUTE FOR THE REAL THING

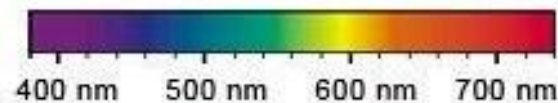


COLORS OF DAYLIGHT





WHAT ARE YOUR SIGNALS?

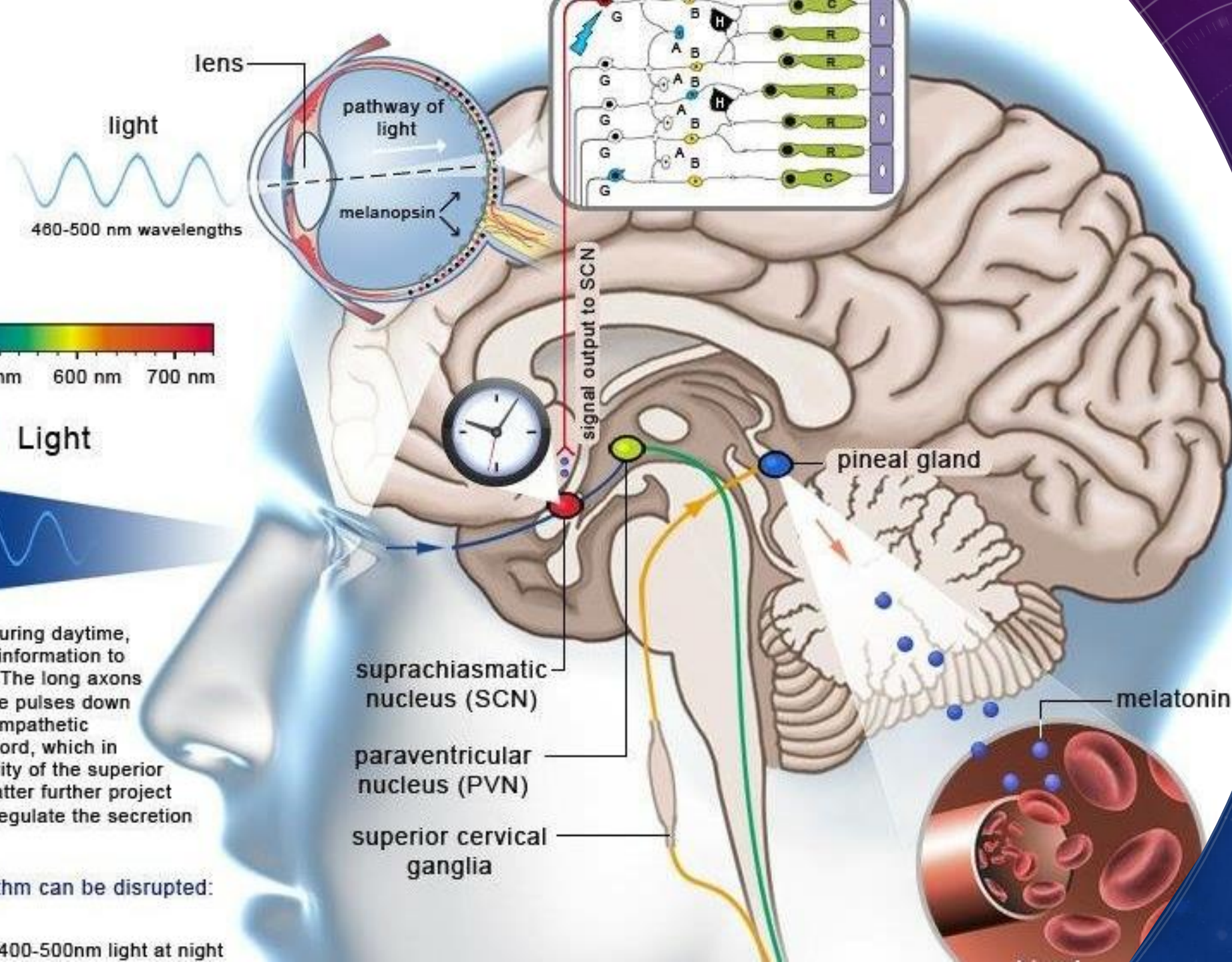


Light

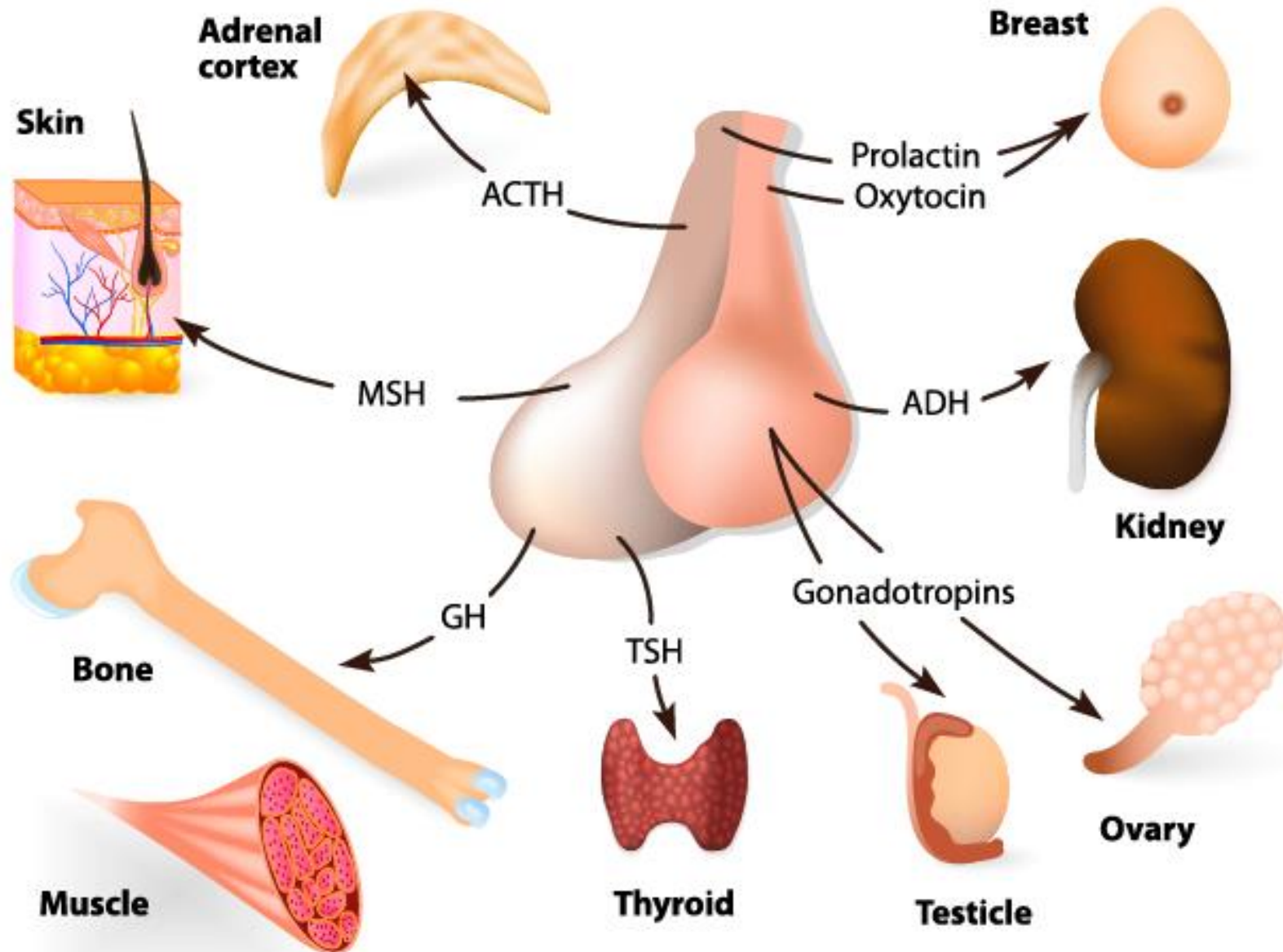
Activated by sunlight during daytime, SCN project inhibitory information to PVN in hypothalamus. The long axons of PVN then send nerve pulses down to the preganglionic sympathetic neurons of the spinal cord, which in turn modulate the activity of the superior cervical ganglia. The latter further project to the pineal gland to regulate the secretion of melatonin.

The circadian rhythm can be disrupted:

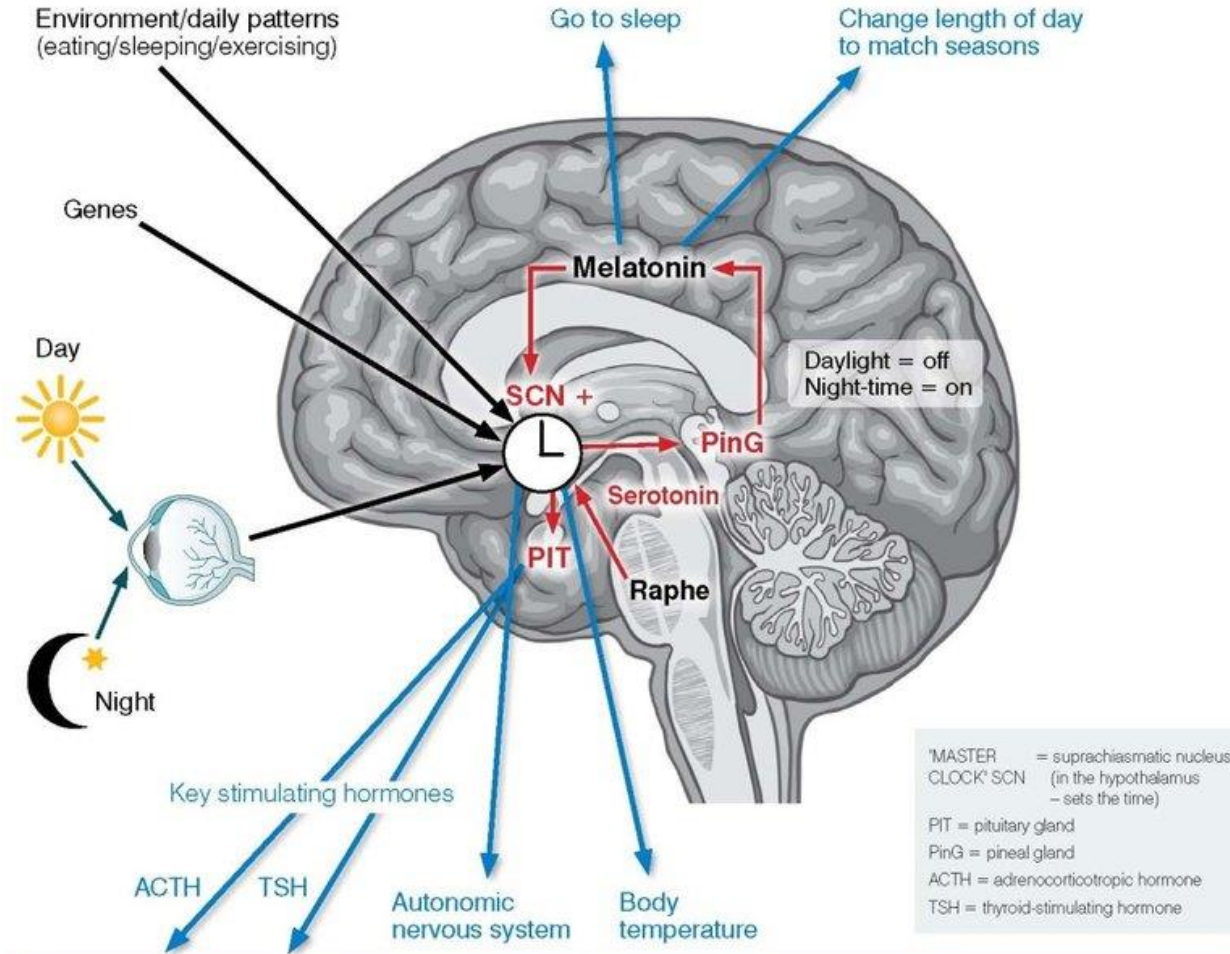
Exposure to 400-500nm light at night











PITUITARY GLAND

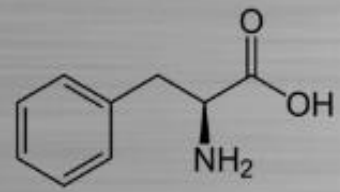


Setting the 24-hour circadian rhythm

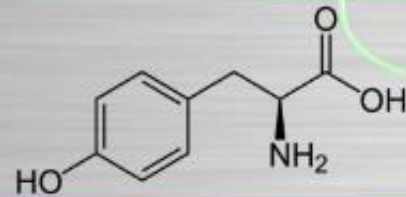


ORGAN LEVEL							
Adrenal gland	Thyroid gland	Heart	Pancreas	Liver	Fat	Muscle	Gut
							
cortisol	thyroid hormone		insulin	glycogen	lipid metabolism		

AROMATIC AMINOACIDS AND PHOTOADAPTATION



Phenylalanine



Tyrosine

Photosynthesis

Signal transduction proteins

Precursor

T3, T4

Flavonoids

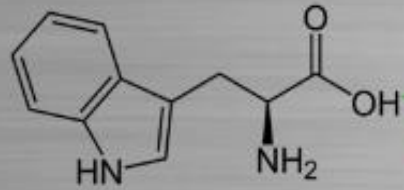
DOPA

Melanin

Dopamine

Adrenalin

Noradrenalin



Tryptophan

Neurotransmitter

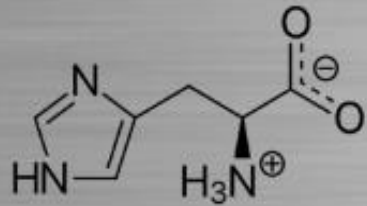
Neurohormone

Serotonin

Melatonin

Tryptamine

Psychedelic drugs



Histidine

Stabilizes oxy-hemoglobin

Histamine

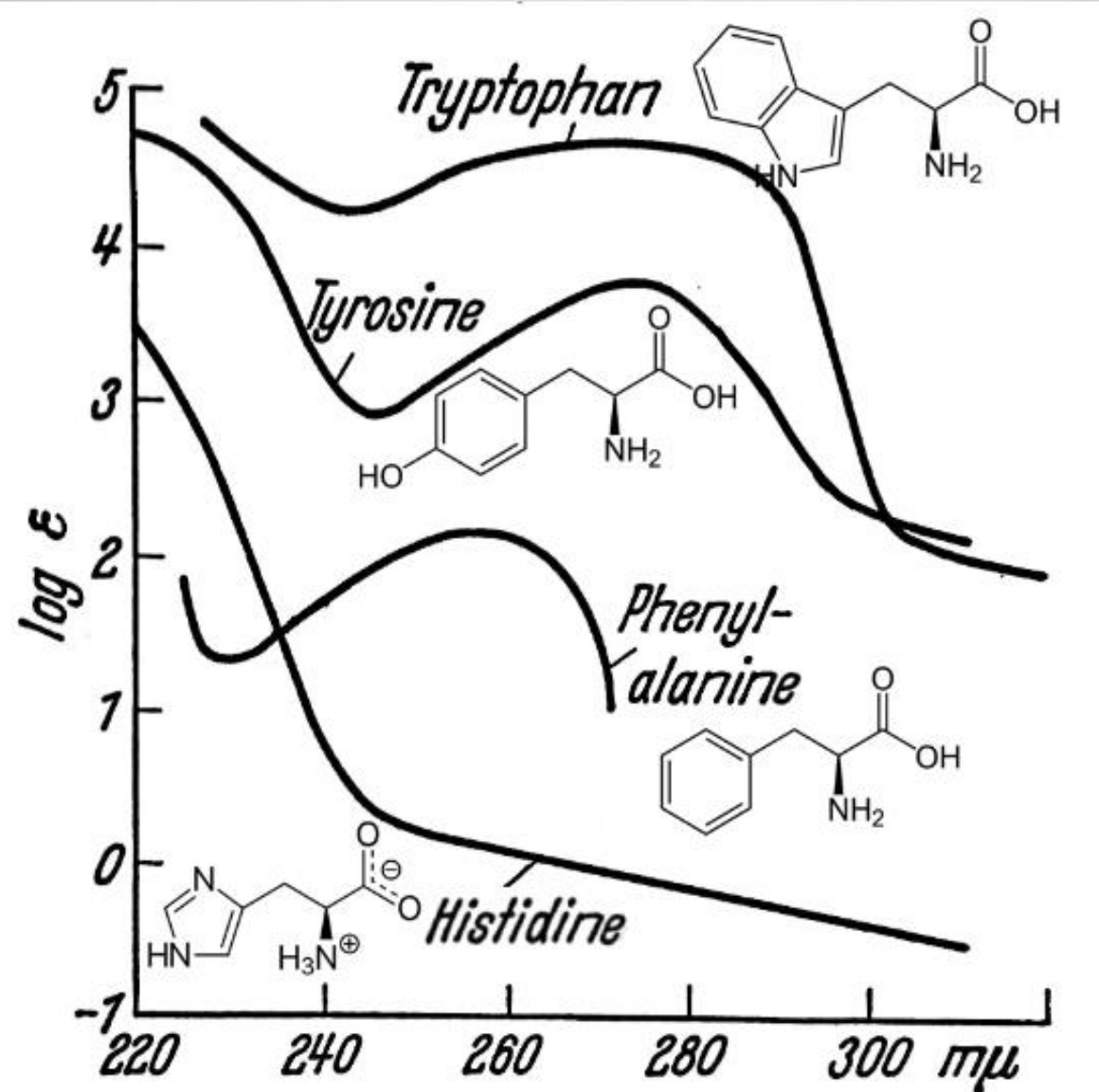
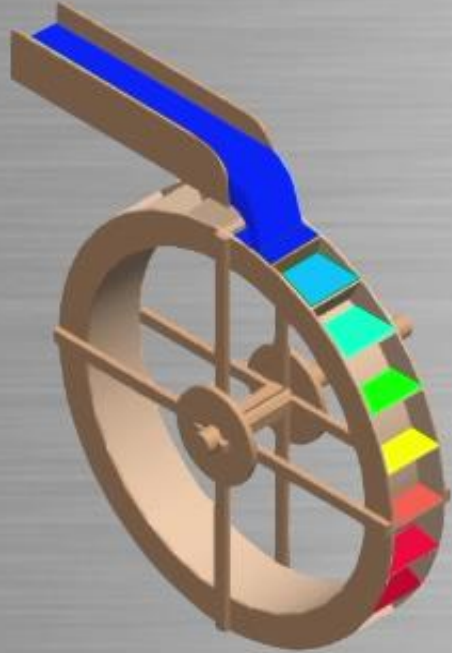
Erythema

Urocanic acid

UV-Filter

AROMATIC AMINOACIDS ABSORB UV LIGHT

UV



MELANOPSIN IS IN EYE, FAT, AND SKIN

SCIENTIFIC REPORTS

OPEN

Subcutaneous white adipocytes express a light sensitive signaling pathway mediated via a melanopsin/TRPC channel axis

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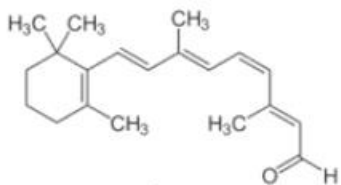
Katarina Ondrusova¹, Mohammad Fatehi¹, Amy Barr¹, Zofia Czarnecka¹, Wentong Long¹, Kunimasa Suzuki¹, Scott Campbell¹, Koenraad Philippaert¹, Matthew Hubert¹, Edward Tredget², Peter Kwan², Nicolas Touret³, Martin Wabitsch⁴, Kevin Y. Lee⁵ & Peter E. Light¹

Subcutaneous white adipose tissue (scWAT) is the major fat depot in humans and is a central player in regulating whole body metabolism. Skin exposure to UV wavelengths from sunlight is required for Vitamin D synthesis and pigmentation, although it is plausible that longer visible wavelengths that penetrate the skin may regulate scWAT function. In this regard, we discovered a novel blue light-sensitive current in human scWAT that is mediated by melanopsin coupled to transient receptor potential canonical cation channels. This pathway is activated at physiological intensities of light that penetrate the skin on a sunny day. Daily exposure of differentiated adipocytes to blue light resulted in decreased lipid droplet size, increased basal lipolytic rate and alterations in adiponectin and leptin secretion. Our results suggest that scWAT function may be directly under the influence of ambient sunlight exposure and may have important implications for our current understanding of adipocyte biology. (150 words)

MELANOPSIN

- Light sensing photopigment, but not for vision
 - Blue light photo-receptor (435-465 nm target) in our eyes responsible for relaying sunlight to the SCN to entrain the central pacemaker via the central retinal pathways
- Not in rods or cones, but in ganglion cells
- Since melanopsin is loosely bound to Vitamin A any MANMADE blue light exposure skin causes circadian disruption. Since Vitamin A cycles are tightly yoked to Vitamin D production in the skin as Vitamin A drops in the plasma from skin irradiation with the blue light it DIRECTLY limits how much Vitamin D3 can be made in the skin.

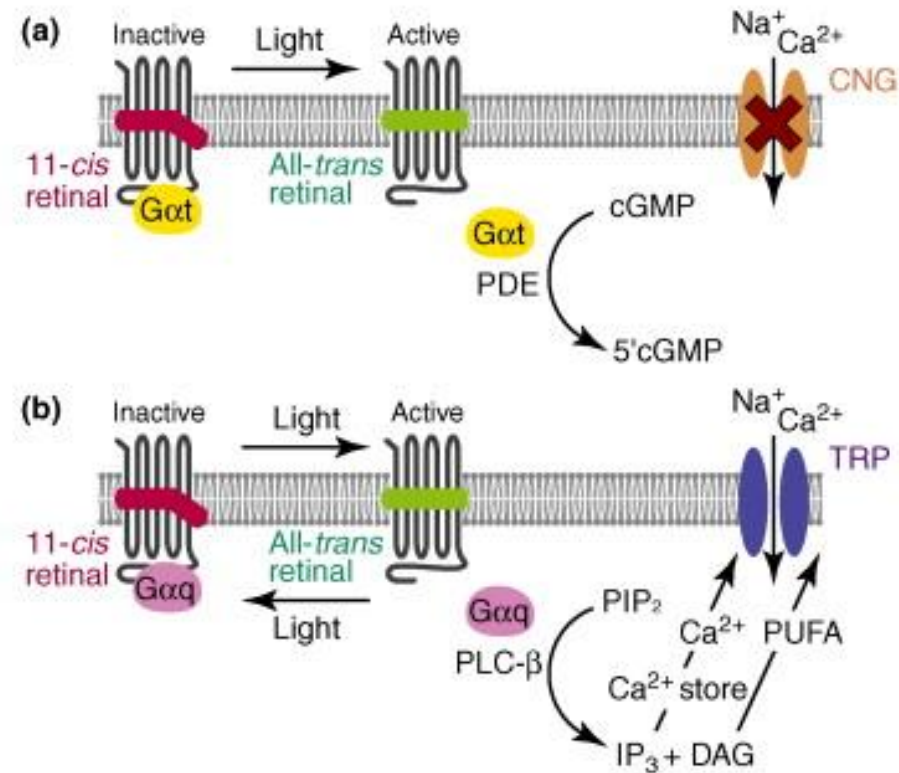
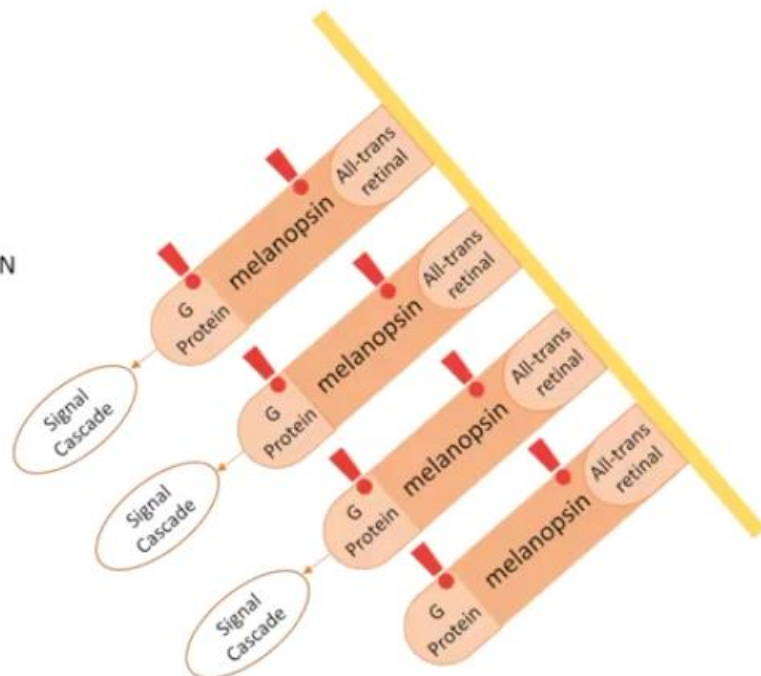
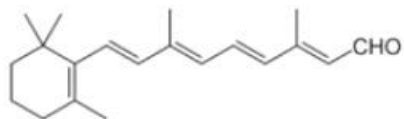
11-cis-retinal



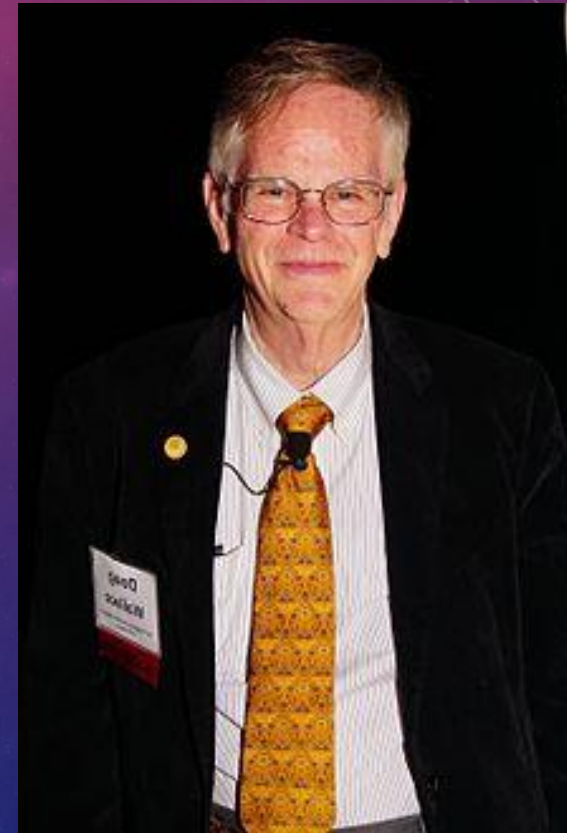
BLUE LIGHT ~480 nm

PHOTO-ISOMERIZATION

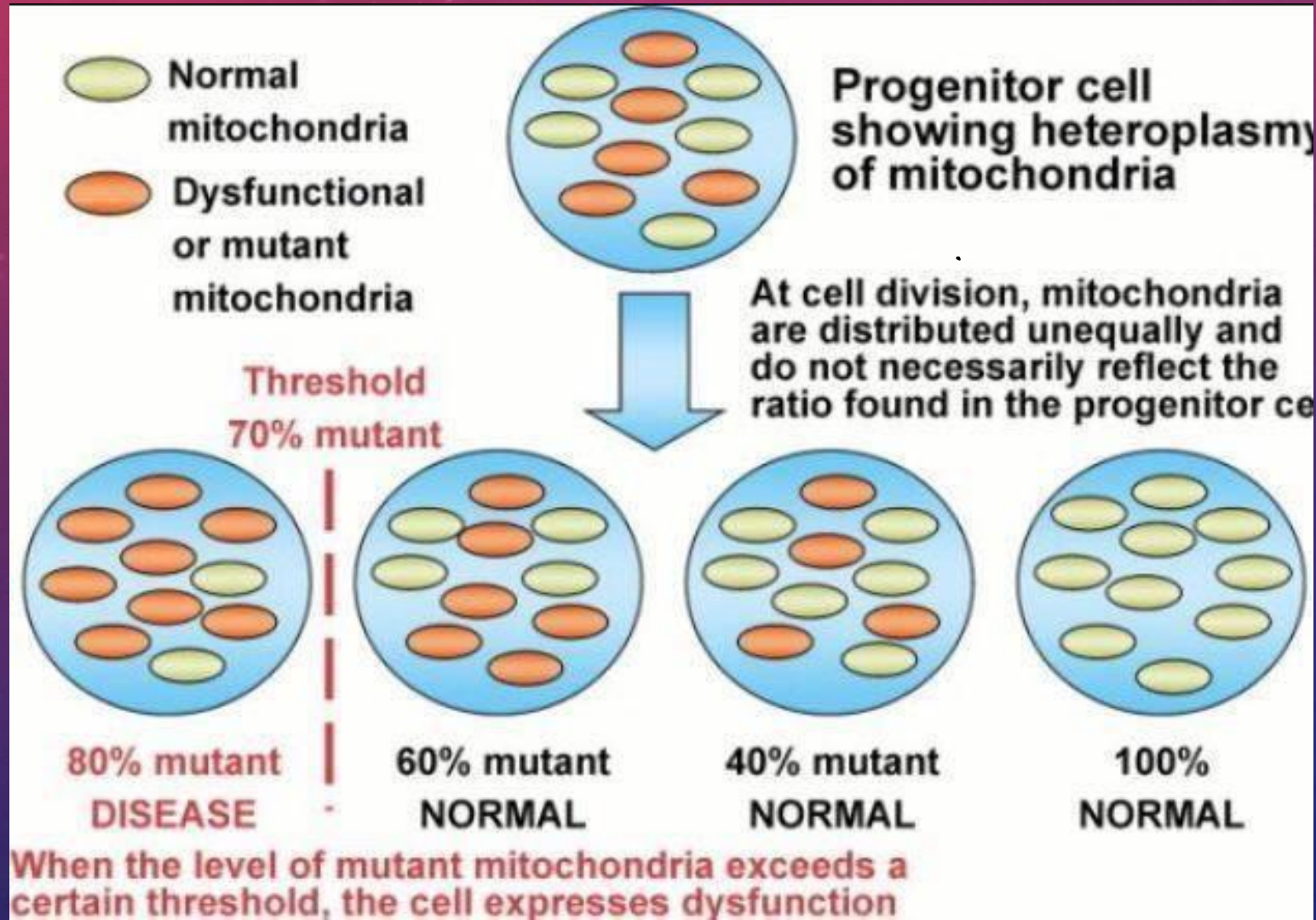
all-trans-retinal



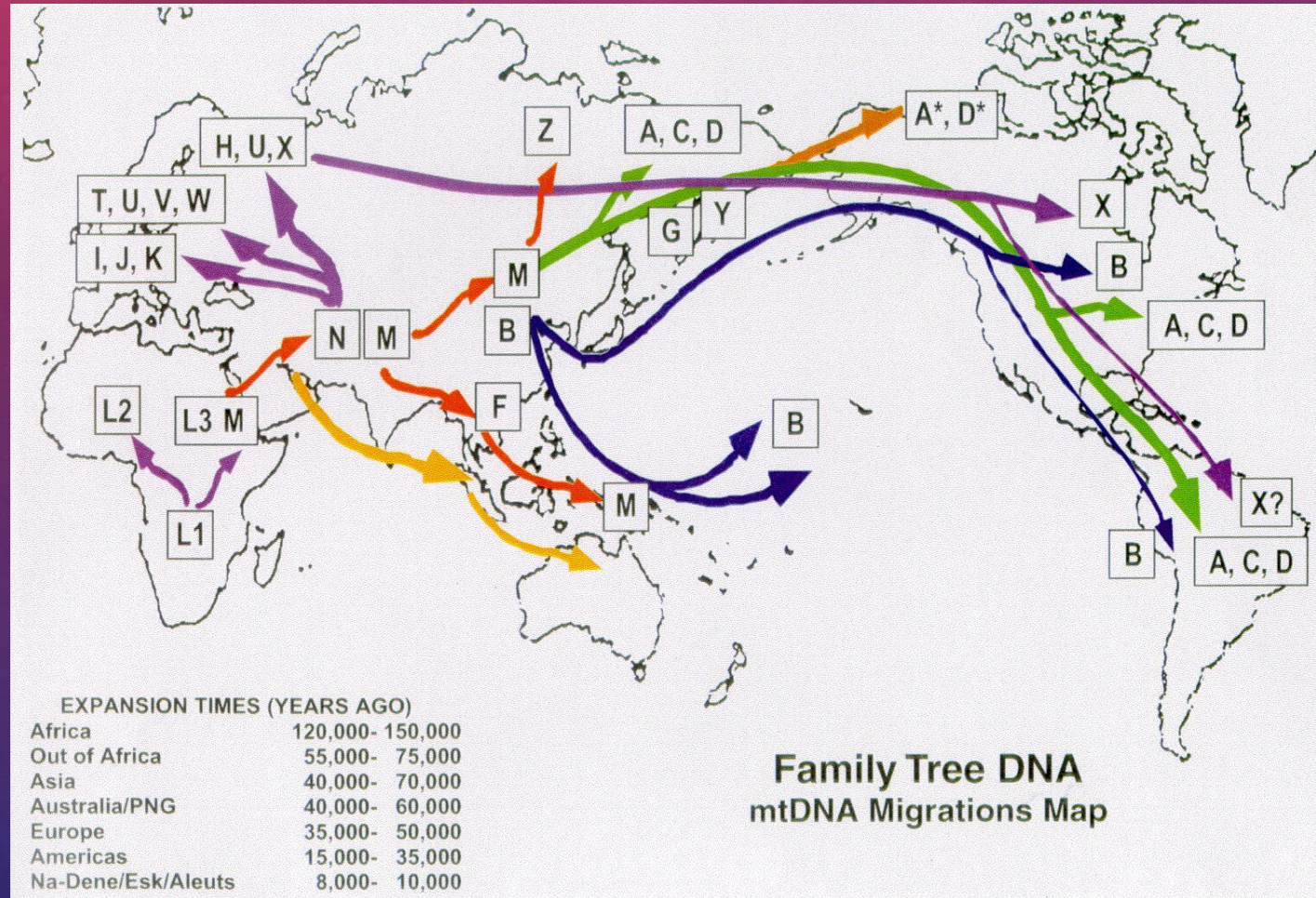
MITOCHONDRIA IS YOUR POWER TO HEAL



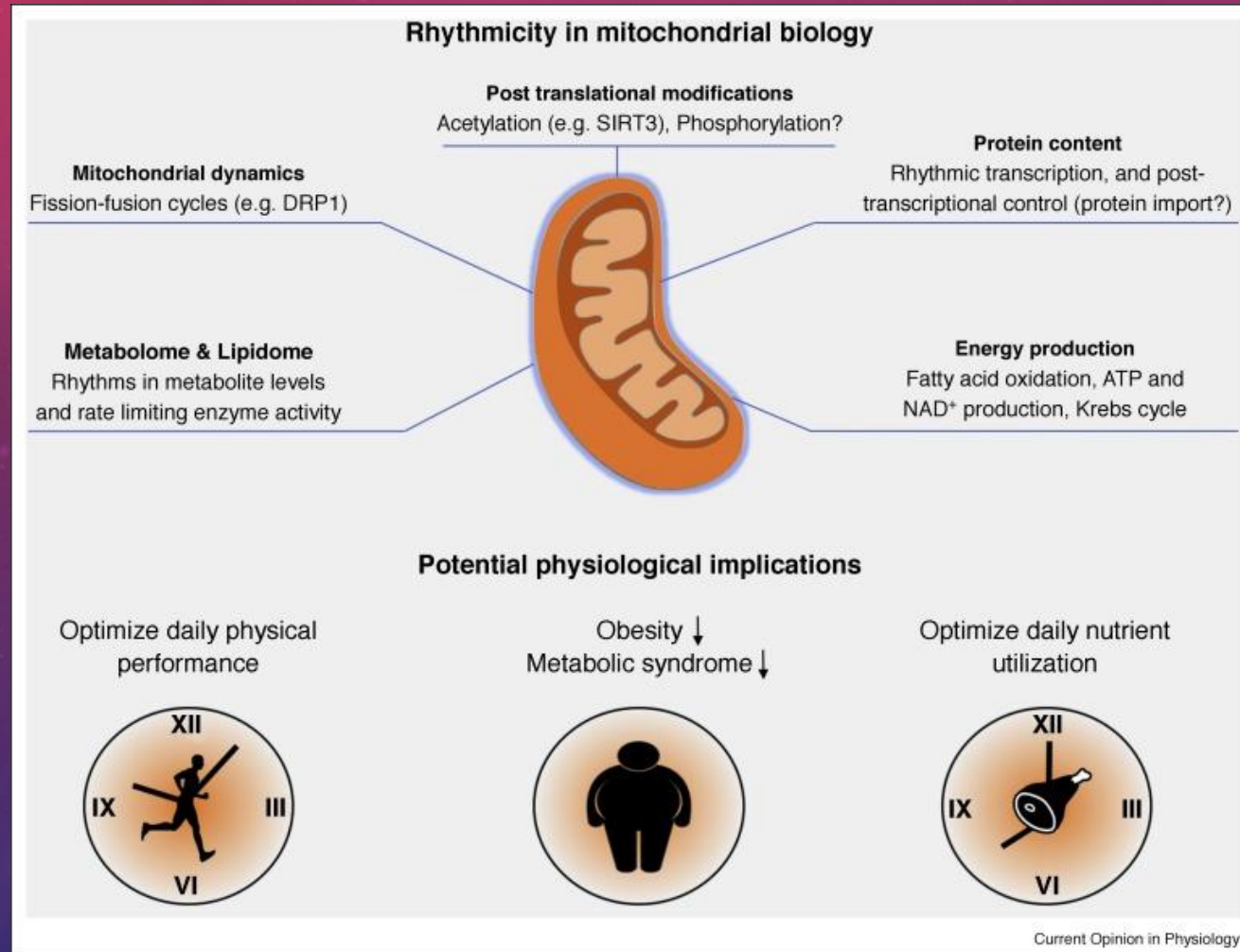
IT'S NOT ABOUT NUCLEAR DNA...



ENVIRONMENTALLY PROGRAMMED



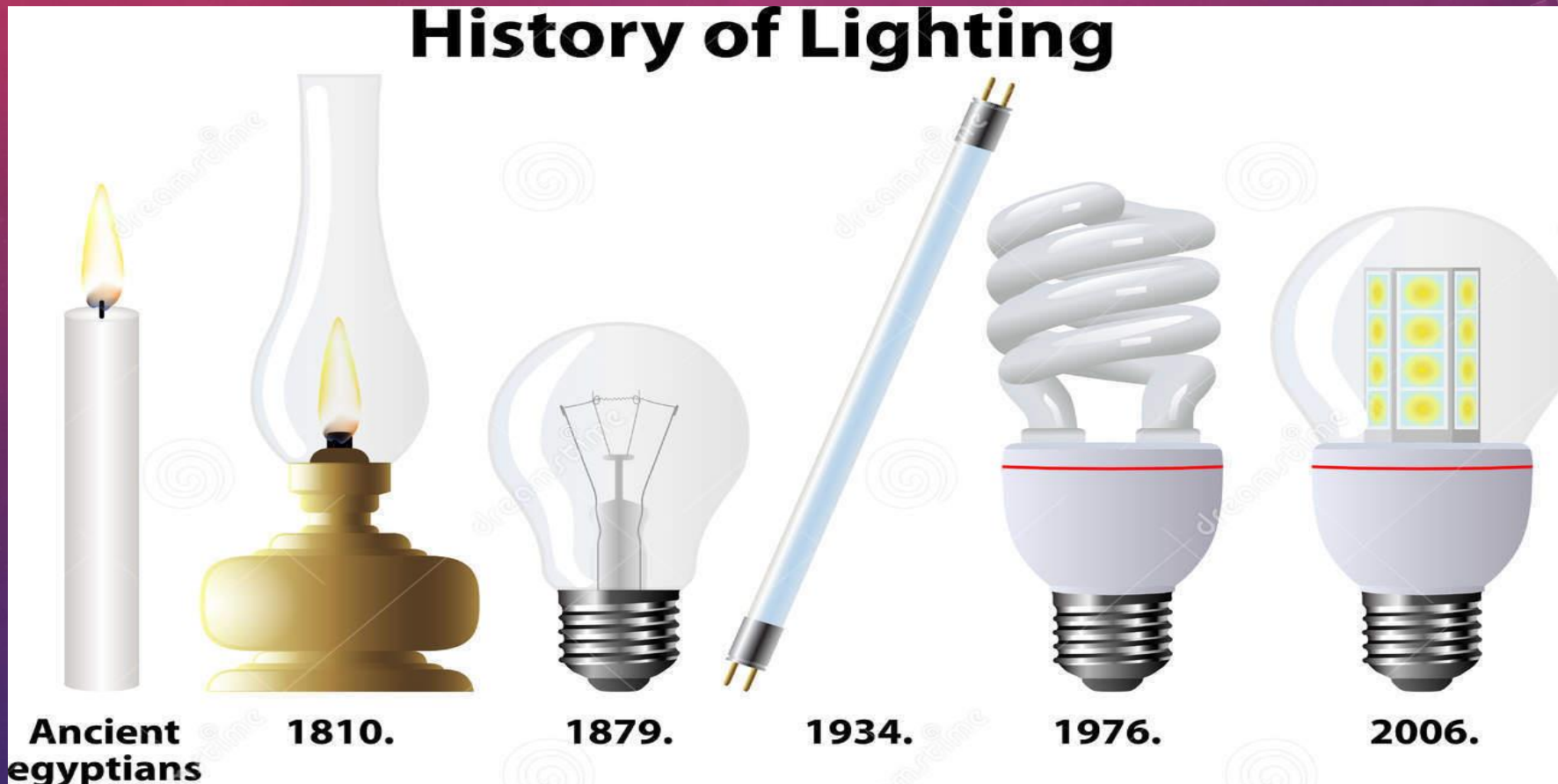
MITOCHONDRIA TRANSLATE THE ENVIRONMENT



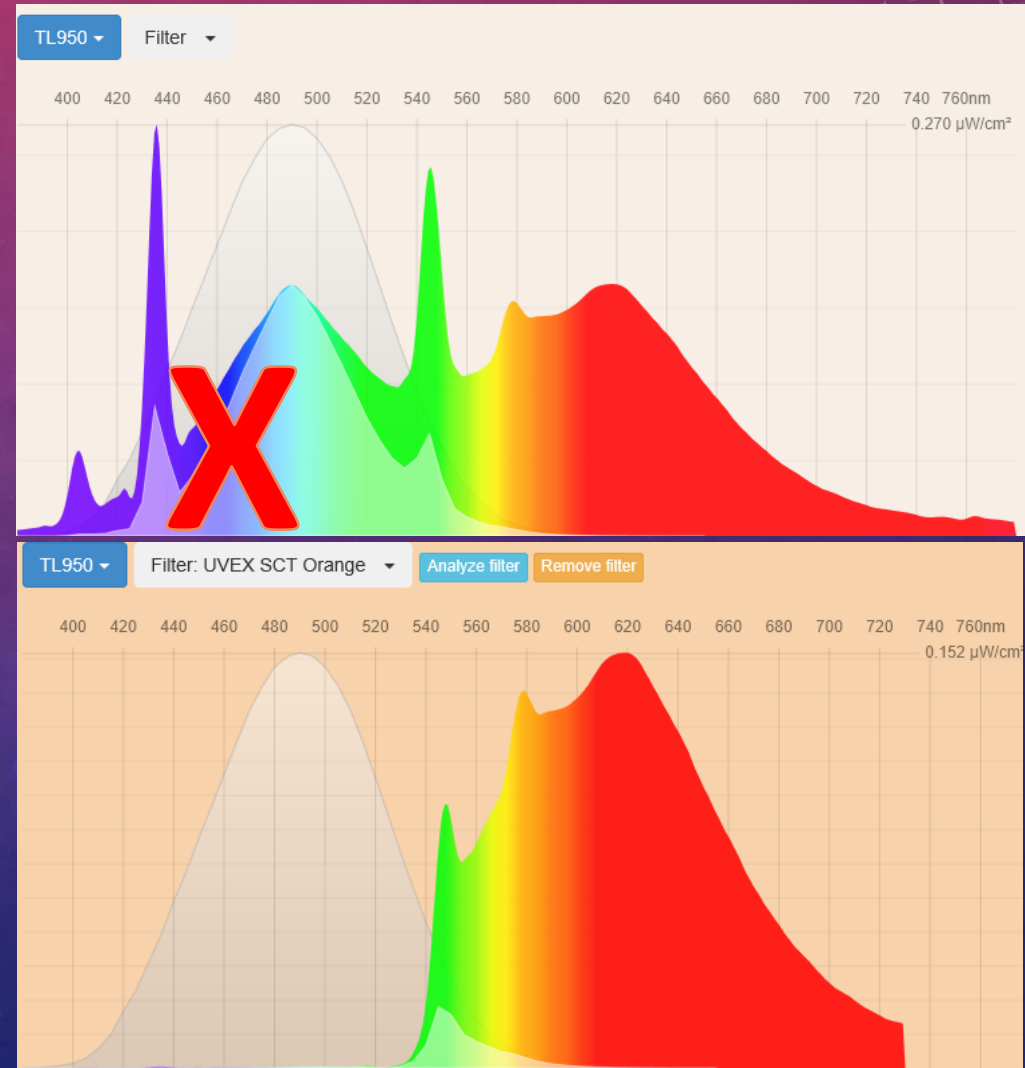
EVOLUTION OF CLOTHING = CIRCADIAN DYSRUPTION



EVOLUTION OF LIGHT = CIRCADIAN DYSRUPTION



LIGHT PROTECTION – ARTIFICIAL LIGHT



ORDER BLUE-BLOCKERS FOR THE WHOLE
FAMILY: [LUCIAEYES.COM](https://luciaeyes.com)



DISCOUNT CODE = QUANTUM20



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