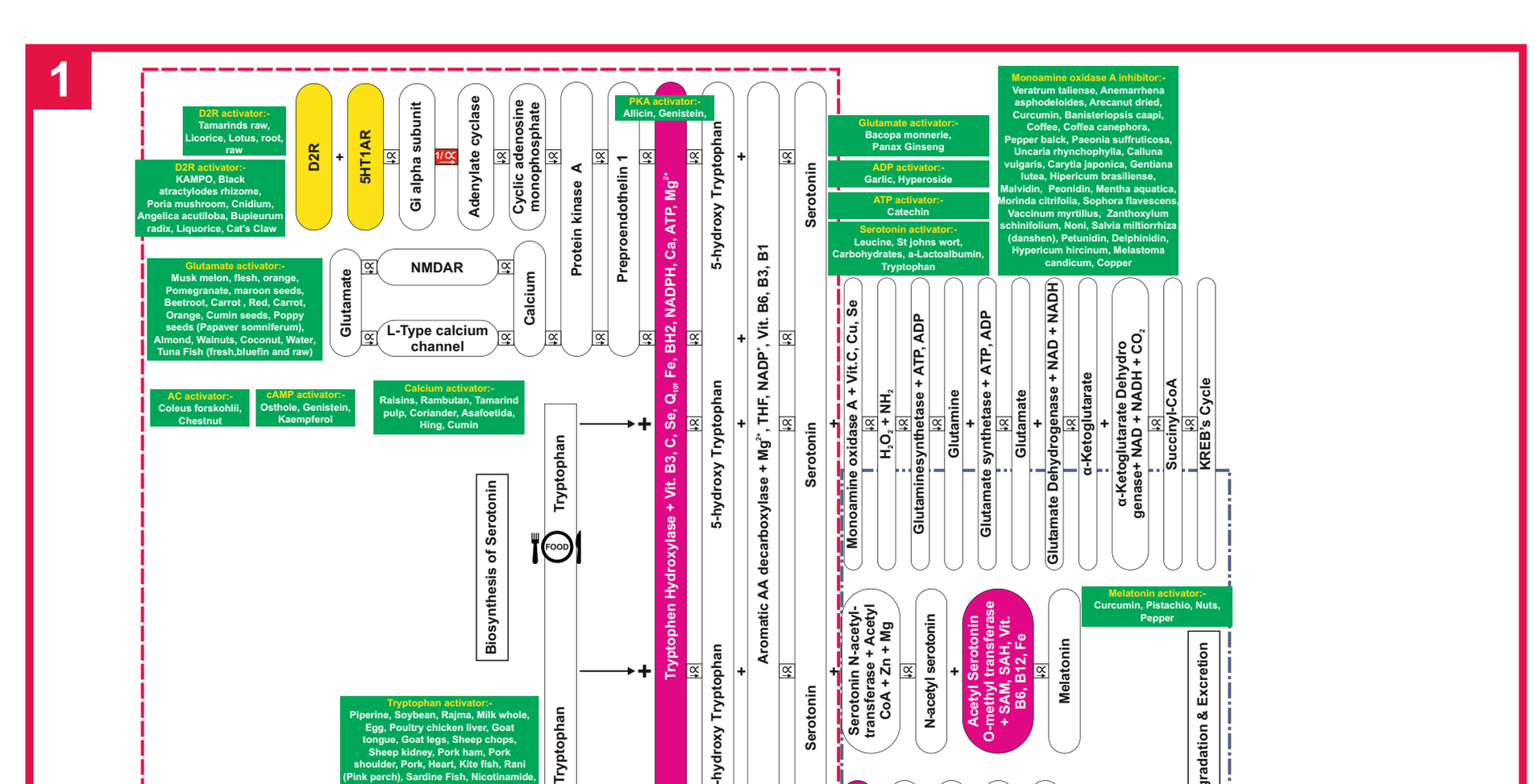
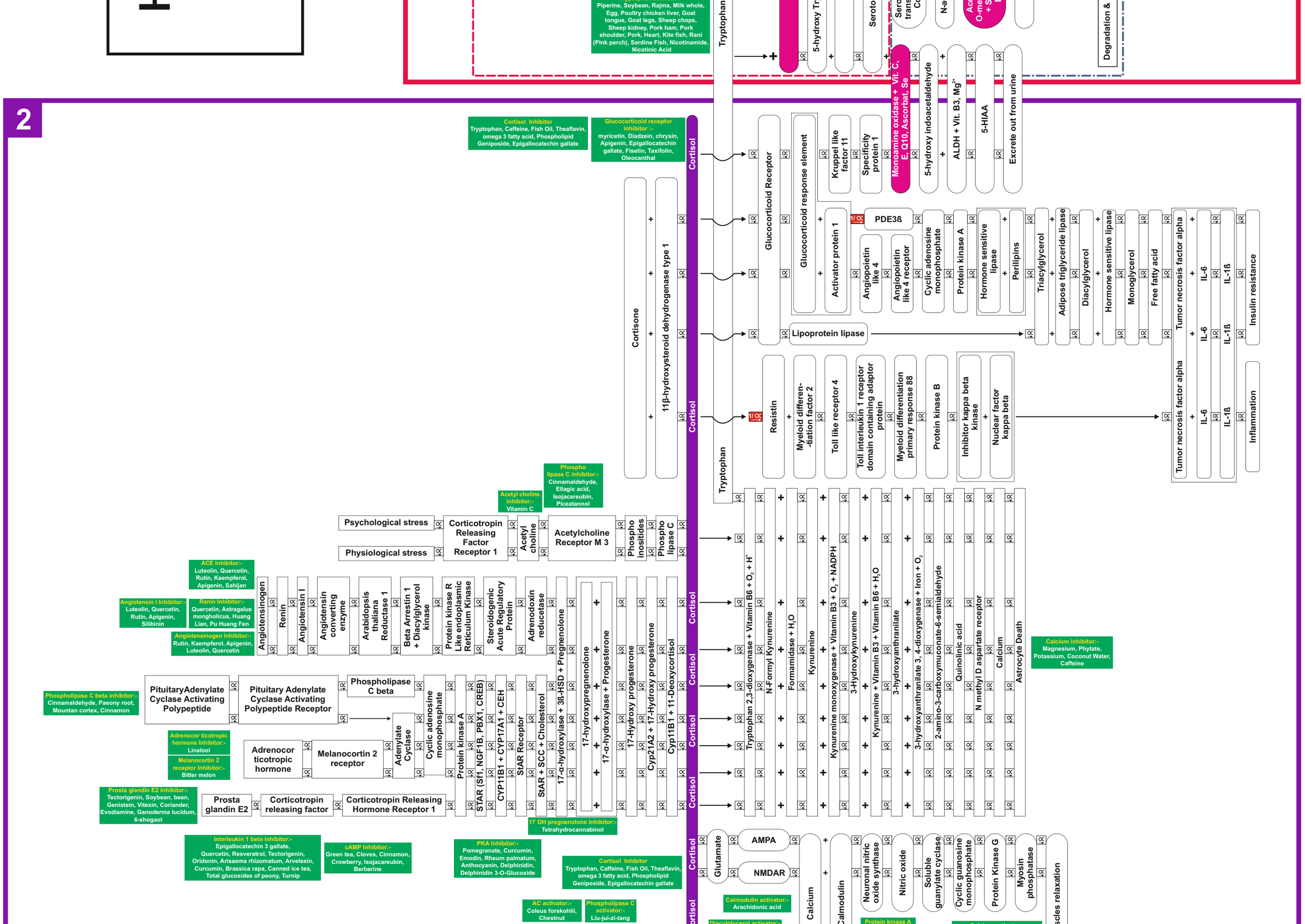
# 23 March 2021

# HYPEREXCITABILITY + OBESITY + DEPRESSION

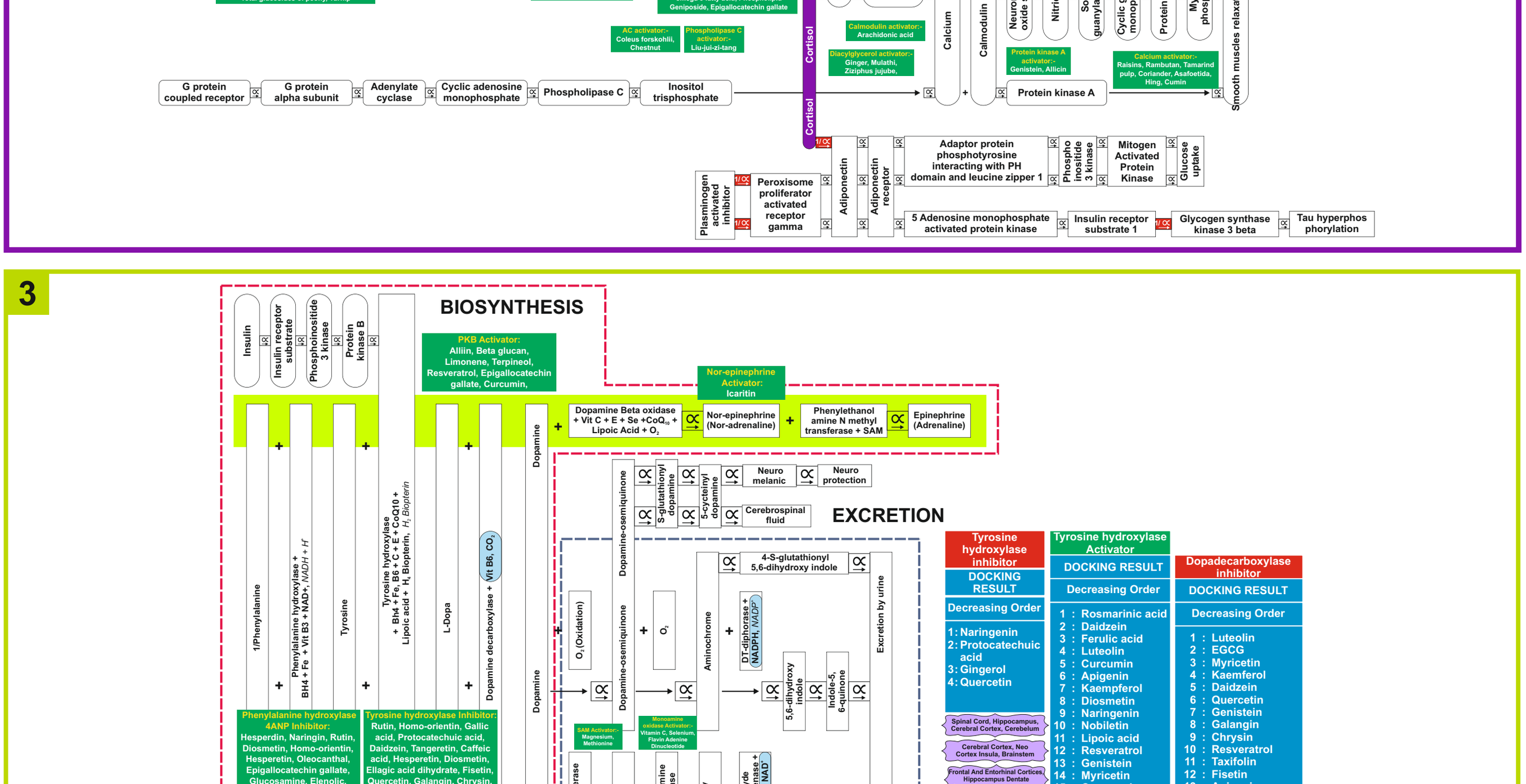
## 1 BIOSYNTHESIS OF SEROTONIN



## 2 BIOSYNTHESIS OF CORTISOL & OBESITY



## 3 BIOSYNTHESIS & EXCRETION OF DOPAMINE



BIOSYNTHESIS

EXCRETION

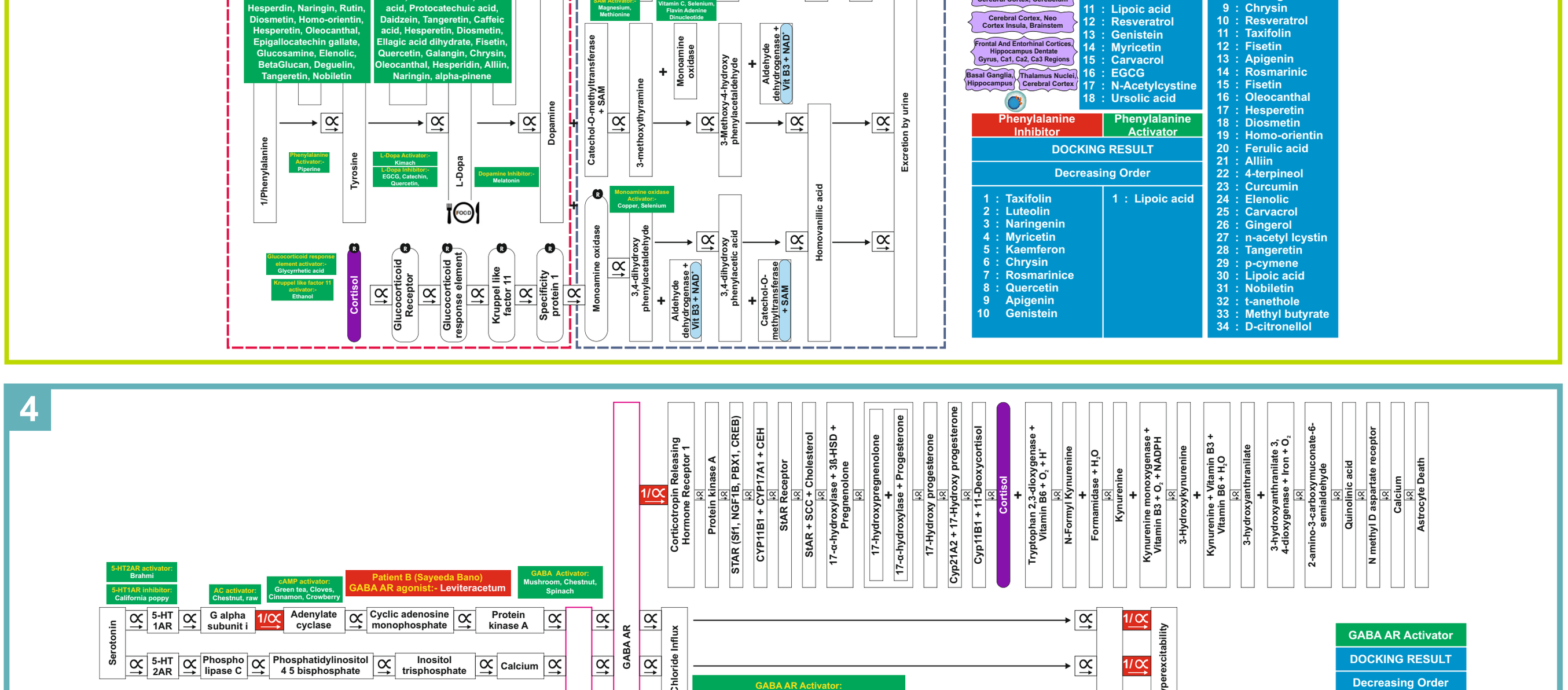
| Tyrosine hydroxylase inhibitor |
|---|
| DOCKING RESULT |
| Decreasing Order |
| 1: Naringenin<br>2: Protocatechuic acid<br>3: Gingerol<br>4: Quercetin |

| Tyrosine hydroxylase Activator |
|---|
| DOCKING RESULT |
| Decreasing Order |
| 1 : Rosmarinic acid<br>2 : Daidzein<br>3 : Ferulic acid<br>4 : Luteolin<br>5 : Curcumin<br>6 : Apigenin<br>7 : Kaempferol<br>8 : Diosmetin<br>9 : Naringenin<br>10 : Nobiletin<br>11 : Lipoic acid<br>12 : Resveratrol<br>13 : Genistein<br>14 : Myricetin<br>15 : Carvacrol<br>16 : EGCG<br>17 : N-Acetylcystine<br>18 : Ursolic acid |

| Dopadecarboxylase inhibitor |
|---|
| DOCKING RESULT |
| Decreasing Order |
| 1 : Luteolin<br>2 : EGCG<br>3 : Myricetin<br>4 : Kaemferol<br>5 : Daidzein<br>6 : Quercetin<br>7 : Genistein<br>8 : Galangin<br>9 : Chrysin<br>10 : Resveratrol<br>11 : Taxifolin<br>12 : Fisetin<br>13 : Apigenin<br>14 : Rosmarinic<br>15 : Fisetin<br>16 : Oleocanthal<br>17 : Hesperetin<br>18 : Diosmetin<br>19 : Homo-orientin<br>20 : Ferulic acid<br>21 : Alliin<br>22 : 4-terpineol<br>23 : Curcumin<br>24 : Elenolic<br>25 : Carvacrol<br>26 : Gingerol<br>27 : n-acetyl lcystin<br>28 : Tangeretin<br>29 : p-cymene<br>30 : Lipoic acid<br>31 : Nobiletin<br>32 : t-anethole<br>33 : Methyl butyrate<br>34 : D-citronellol |

| Phenylalanine Inhibitor | Phenylalanine Activator |
|---|---|
| DOCKING RESULT | |
| Decreasing Order | |
| 1 : Taxifolin<br>2 : Luteolin<br>3 : Naringenin<br>4 : Myricetin<br>5 : Kaemferon<br>6 : Chrysin<br>7 : Rosmarinice<br>8 : Quercetin<br>9 Apigenin<br>10 Genistein | 1 : Lipoic acid |

## 4 ROLE OF GABA

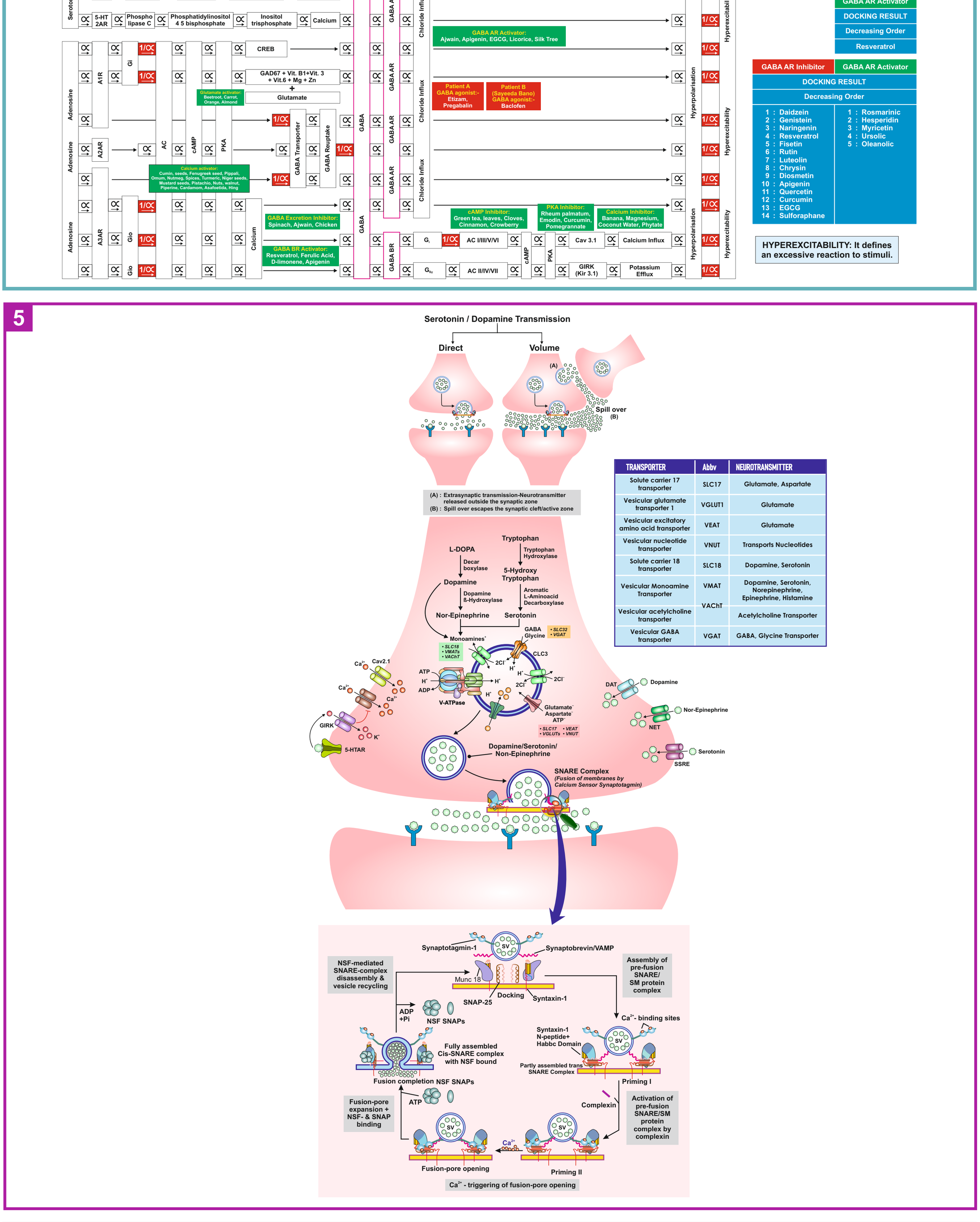


| GABA AR Activator |
|---|
| DOCKING RESULT |
| Decreasing Order |
| Resveratrol |

| GABA AR Inhibitor | GABA AR Activator |
|---|---|
| DOCKING RESULT | |
| Decreasing Order | |
| 1 : Daidzein<br>2 : Genistein<br>3 : Naringenin<br>4 : Resveratrol<br>5 : Fisetin<br>6 : Rutin<br>7 : Luteolin<br>8 : Chrysin<br>9 : Diosmetin<br>10 : Apigenin<br>11 : Quercetin<br>12 : Curcumin<br>13 : EGCG<br>14 : Sulforaphane | 1 : Rosmarinic<br>2 : Hesperidin<br>3 : Myricetin<br>4 : Ursolic<br>5 : Oleanolic |

HYPEREXCITABILITY: It defines an excessive reaction to stimuli.

## 5 SYNAPSE



Serotonin / Dopamine Transmission

| TRANSPORTER | Abbv | NEUROTRANSMITTER |
|---|---|---|
| Solute carrier 17 transporter | SLC17 | Glutamate, Aspartate |
| Vesicular glutamate transporter 1 | VGLUT1 | Glutamate |
| Vesicular excitatory amino acid transporter | VEAT | Glutamate |
| Vesicular nucleotide transporter | VNUT | Transports Nucleotides |
| Solute carrier 18 transporter | SLC18 | Dopamine, Serotonin |
| Vesicular Monoamine Transporter | VMAT | Dopamine, Serotonin, Norepinephrine, Epinephrine, Histamine |
| Vesicular acetylcholine transporter | VAChT | Acetylcholine Transporter |
| Vesicular GABA transporter | VGAT | GABA, Glycine Transporter |

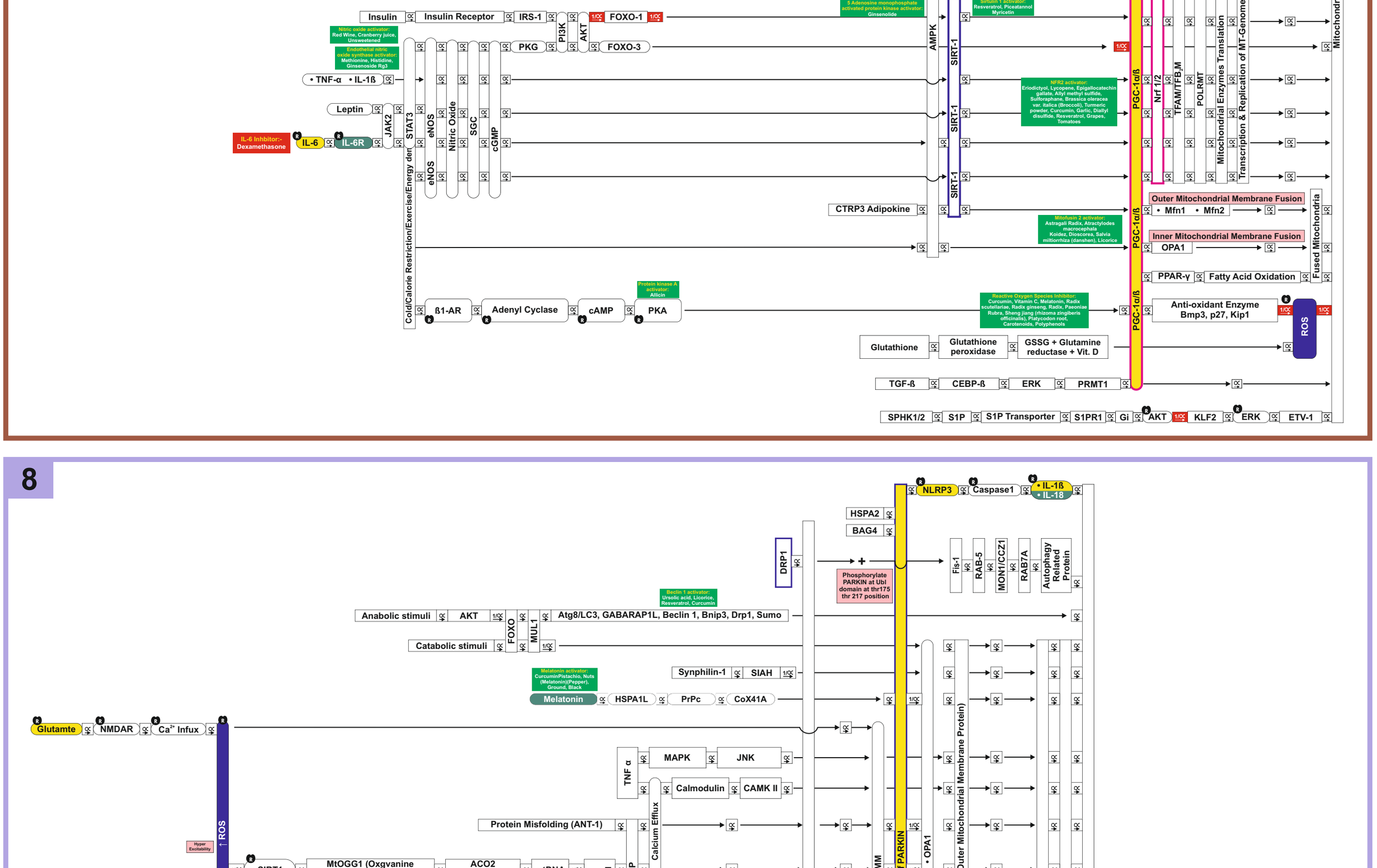
## 6 Cell DIVISION · ROLE OF NEUROGENESIS · LEARNING MEMORY, ASTROCYTOGENESIS, NEUROPROTECTION, AND LONG-TERM POTENTIATION

ASTROCYTOGENESIS : It refers to the creation and development of astrocytes.

NEURO PROTECTION : Neuroprotection refers to the relative preservation of neuronal structure and/or function. In the case of an ongoing insult (a neurodegenerative insult) the relative preservation of neuronal integrity implies a reduction in the rate of neuronal loss over time, which can be expressed as a differential equation.

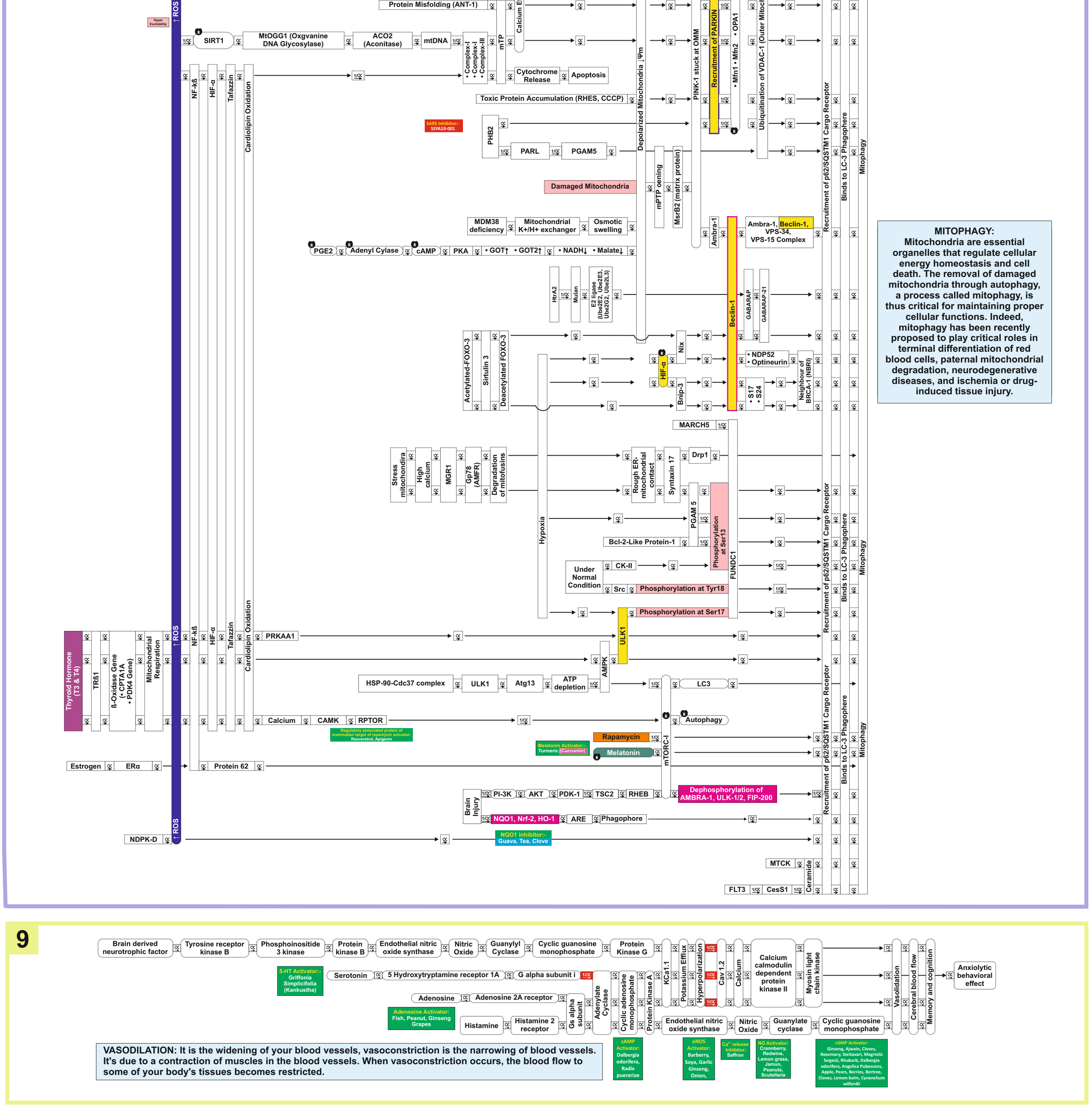
LONG-TERM POTENTIATION: It is a persistent strengthening of synapses based on recent patterns of activity. These are patterns of synaptic activity that produce a long-lasting increase in signal transmission between two neurons. Long-term potentiation is a persistent strengthening of synapses based on recent patterns of activity. These are patterns of synaptic activity that produce a long-lasting increase in signal transmission between two neurons.

## 7 MITOCHONDRIAL BIOGENESIS



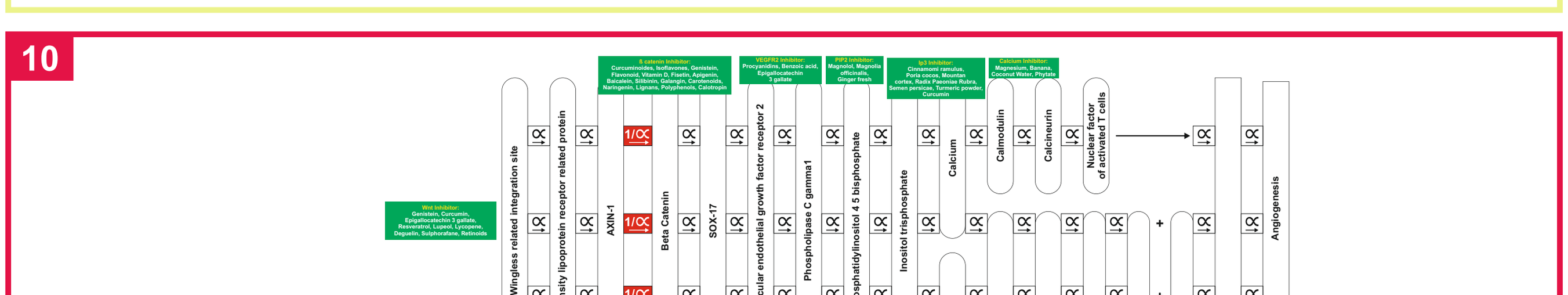
MITOCHONDRIAL BIOGENESIS: It is the process by which cells increase mitochondrial mass. Or it be defined as the growth and division of pre-existing mitochondria. Mitochondrial biogenesis is influenced by environmental stress such as exercise, caloric restriction, low temperature, oxidative stress, cell division and renewal and differentiation. Mitochondrial biogenesis is accompanied not only by variations in number, but also in size and mass.

## 8 MITOPHAGY



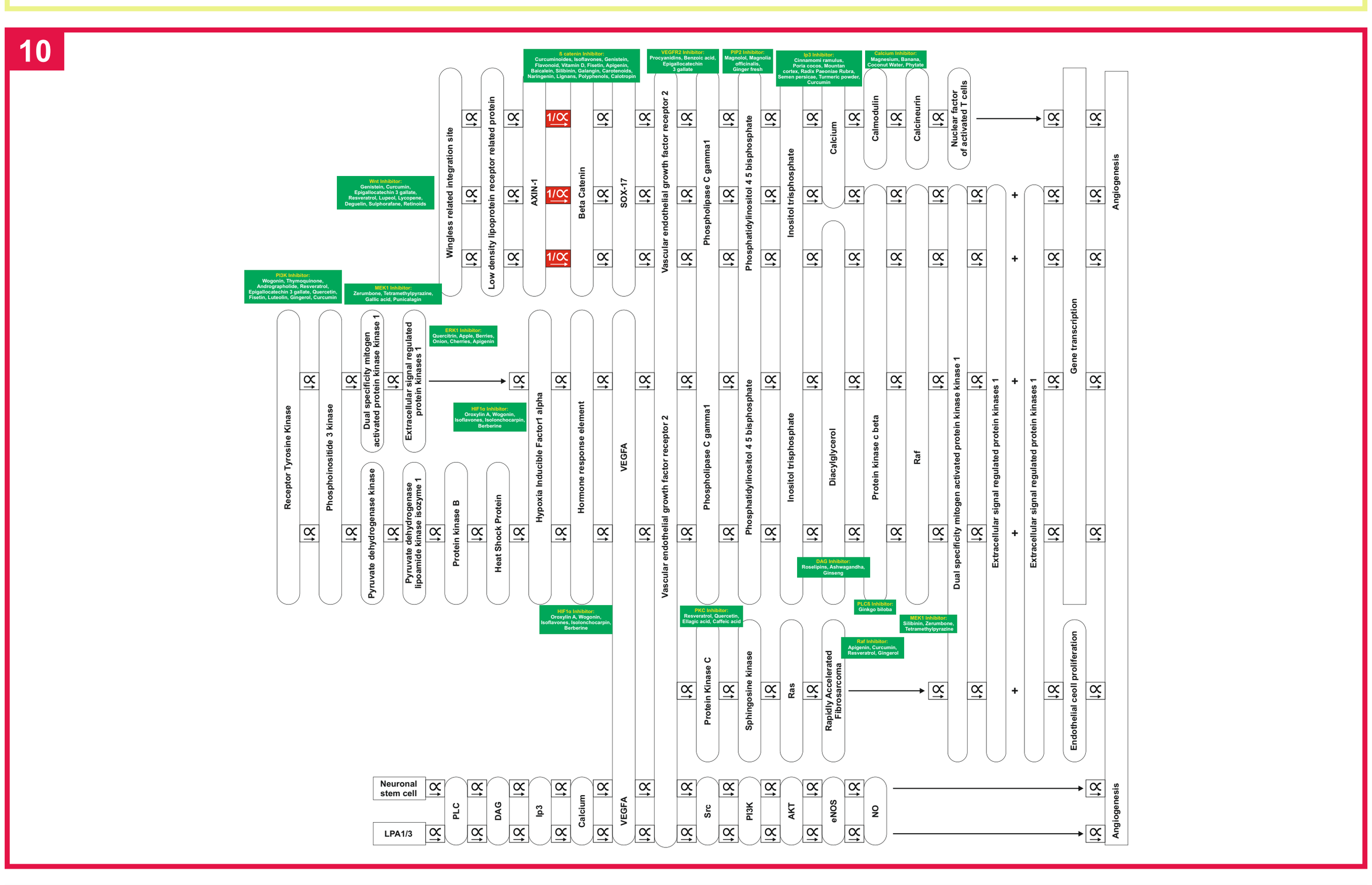
MITOPHAGY: Mitochondria are essential organelles that regulate cellular energy homeostasis and cell death. The removal of damaged mitochondria through autophagy, a process called mitophagy, is thus critical for maintaining proper cellular functions. Indeed, mitophagy has been recently proposed to play critical roles in terminal differentiation of red blood cells, paternal mitochondrial degradation, neurodegenerative diseases, and ischemia or drug-induced tissue injury.

## 9 ROLE OF VASODILATION

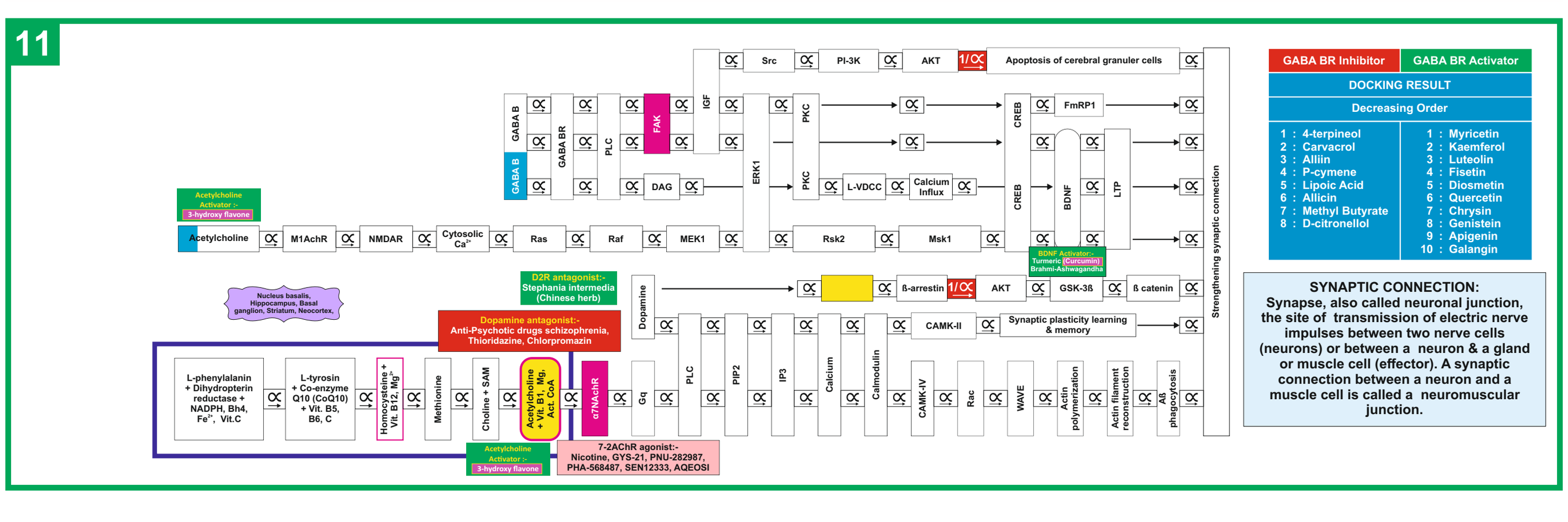


VASODILATION: It is the widening of your blood vessels, vasoconstriction is the narrowing of blood vessels. It's due to a contraction of muscles in the blood vessels. When vasoconstriction occurs, the blood flow to some of your body's tissues becomes restricted.

## 10 Angiogenesis



## 11 SYNAPTIC CONNECTION & ACETYLCHOLINE



| GABA BR Inhibitor | GABA BR Activator |
|---|---|
| DOCKING RESULT | |
| Decreasing Order | |
| 1 : 4-terpineol<br>2 : Carvacrol<br>3 : Alliin<br>4 : P-cymene<br>5 : Lipoic Acid<br>6 : Allicin<br>7 : Methyl Butyrate<br>8 : D-citronellol | 1 : Myricetin<br>2 : Kaemferol<br>3 : Luteolin<br>4 : Fisetin<br>5 : Diosmetin<br>6 : Quercetin<br>7 : Chrysin<br>8 : Genistein<br>9 : Apigenin<br>10 : Galangin |

SYNAPTIC CONNECTION: Synapse, also called neuronal junction, the site of transmission of electric nerve impulses between two nerve cells (neurons) or between a neuron & a gland or muscle cell (effector). A synaptic connection between a neuron and a muscle cell is called a neuromuscular junction.