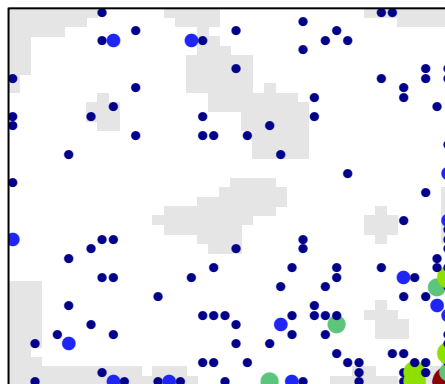
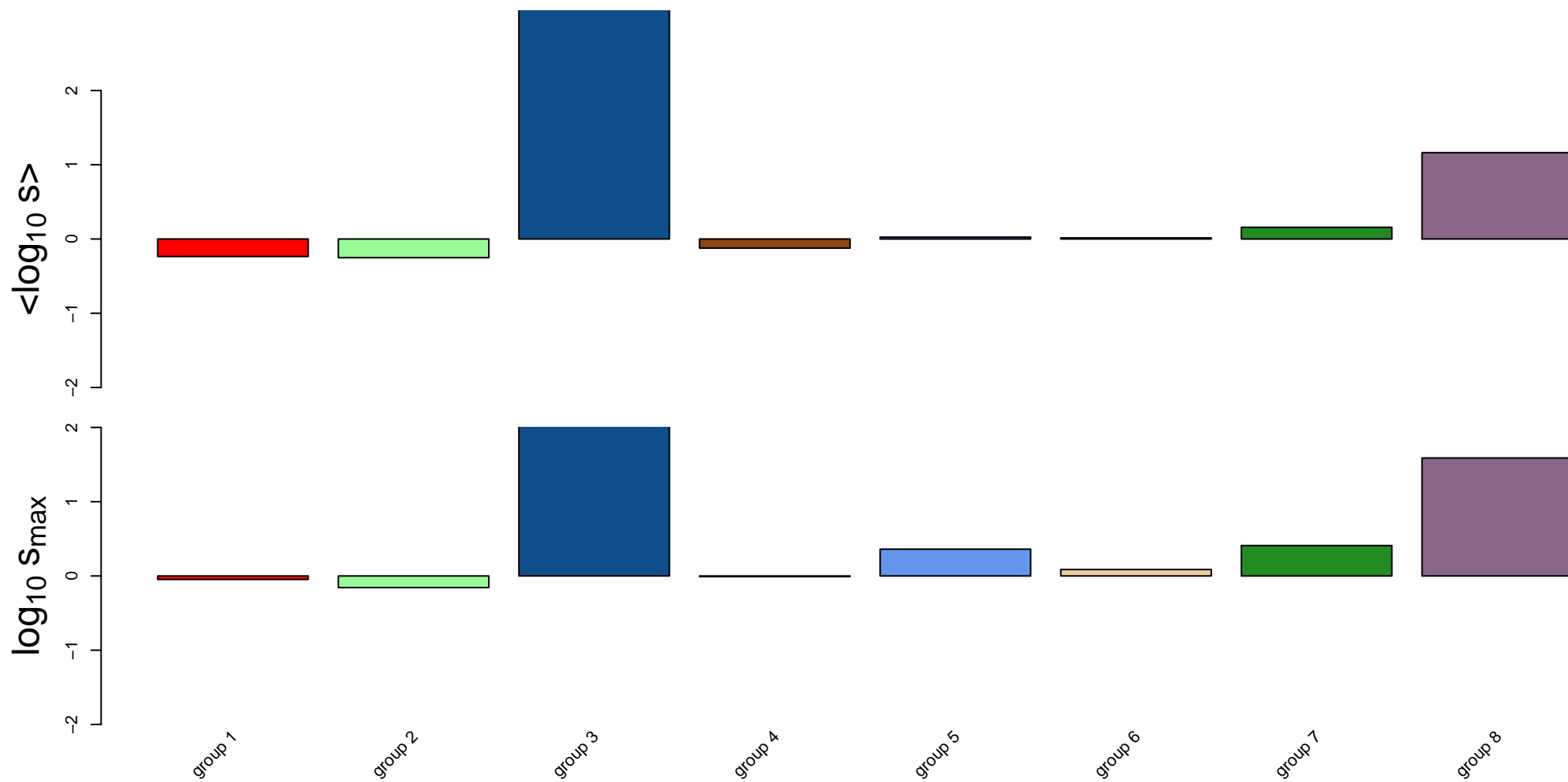
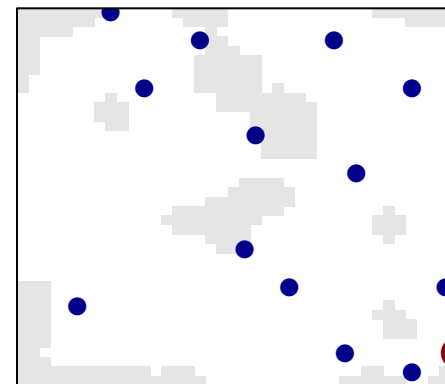


# Long-term potentiation

## all genes



## sink node genes

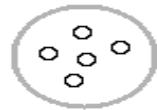


Long\_term\_potential  
genes with data

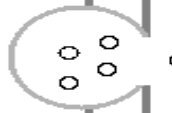
Presynaptic terminal  
(Schaffer collateral)

Glutamatergic synapse

Dendritic spines of  
postsynaptic neuron  
(CA1 pyramidal neuron)



Strong afferent  
stimulation



Glutamate

Mg<sup>2+</sup>

Ca<sup>2+</sup>

DAG

IP<sub>3</sub>

Na<sup>+</sup>

cAMP

IP<sub>3</sub>

Enhanced EPSC

Insert additional AMPARs

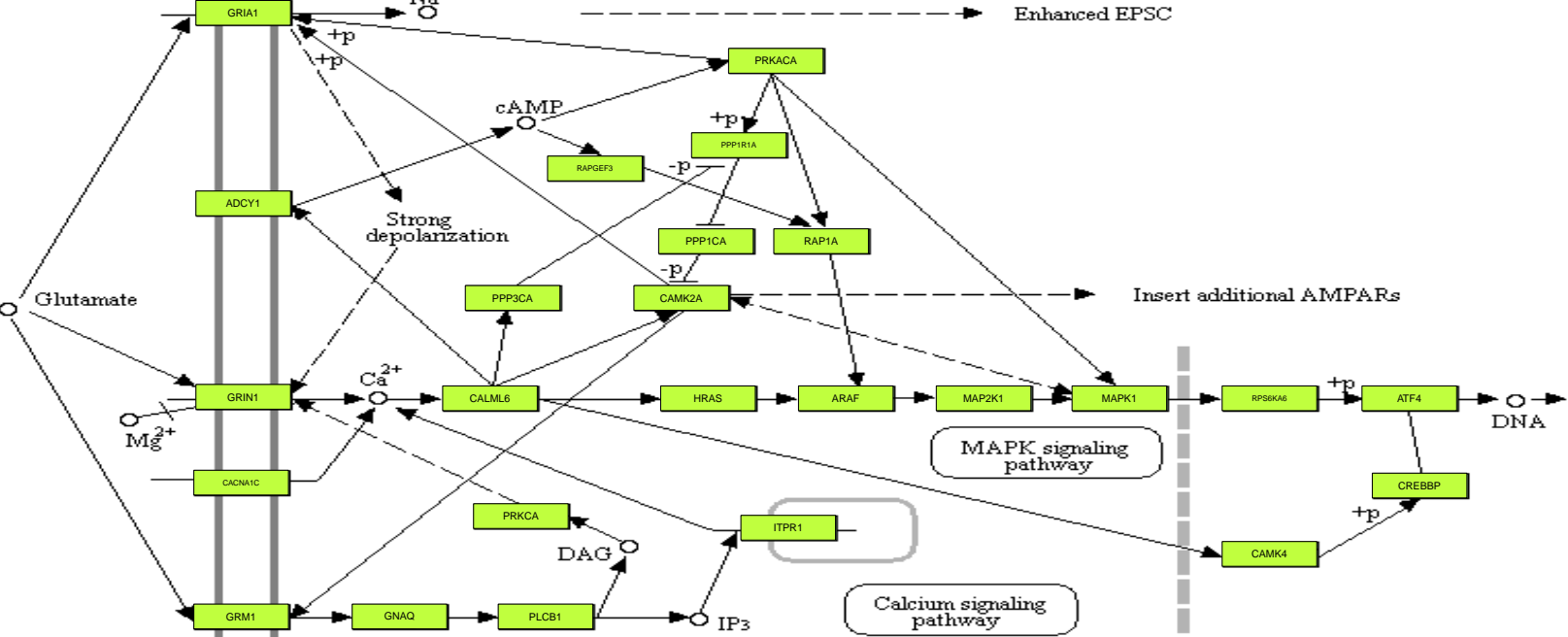
MAPK signaling  
pathway

Calcium signaling  
pathway

Transcriptional  
regulators

Synapse  
growth proteins

DNA

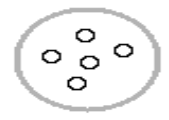


Long\_term\_potential  
sink nodes

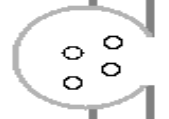
Presynaptic terminal  
(Schaffer collateral)

Glutamatergic  
synapse

Dendritic spines of  
postsynaptic neuron  
(CA1 pyramidal neuron)



Strong afferent  
stimulation



Glutamate

Mg<sup>2+</sup>

Ca<sup>2+</sup>

CALML6

DAG

IP<sub>3</sub>

Na<sup>+</sup>

cAMP

Strong  
depolarization

Enhanced EPSC

Insert additional AMPARs

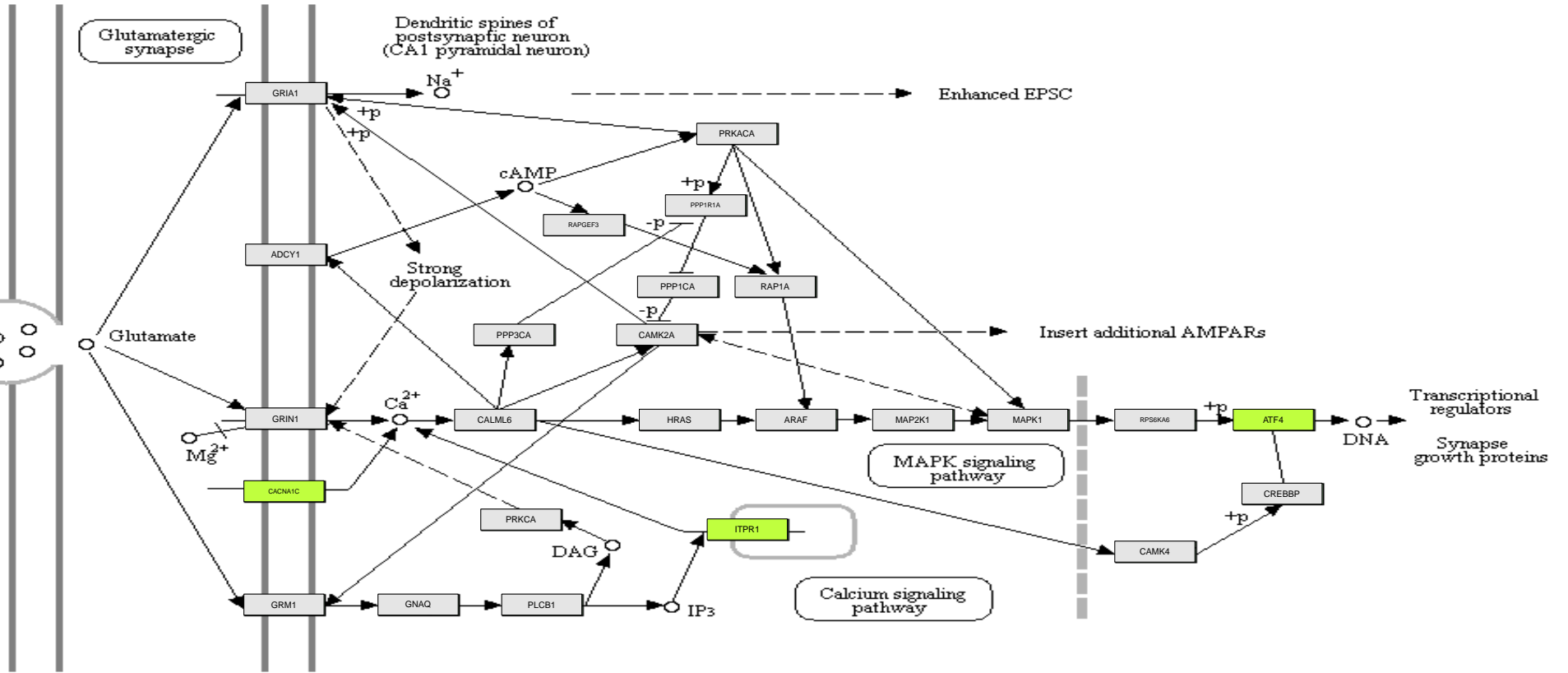
MAPK signaling  
pathway

Calcium signaling  
pathway

Transcriptional  
regulators

Synapse  
growth proteins

DNA

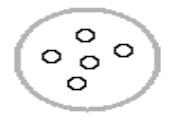


Long\_term\_potential\_group 1

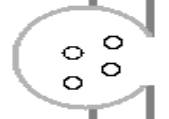
Presynaptic terminal (Schaffer collateral)

Glutamatergic synapse

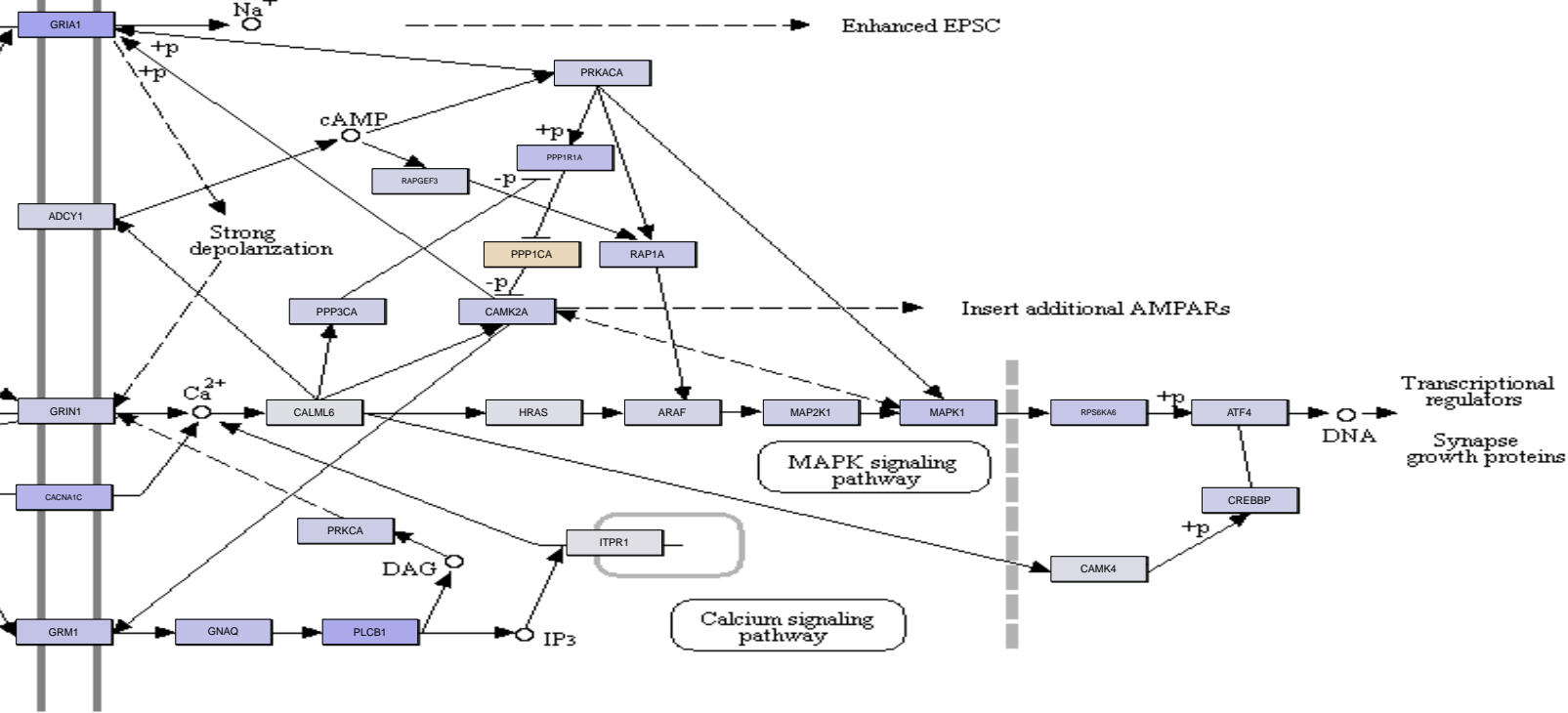
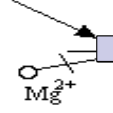
Dendritic spines of postsynaptic neuron (CA1 pyramidal neuron)



Strong afferent stimulation



Glutamate

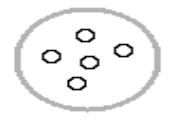


Long\_term\_potential  
group 2

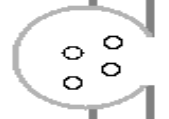
Presynaptic terminal  
(Schaffer collateral)

Glutamatergic synapse

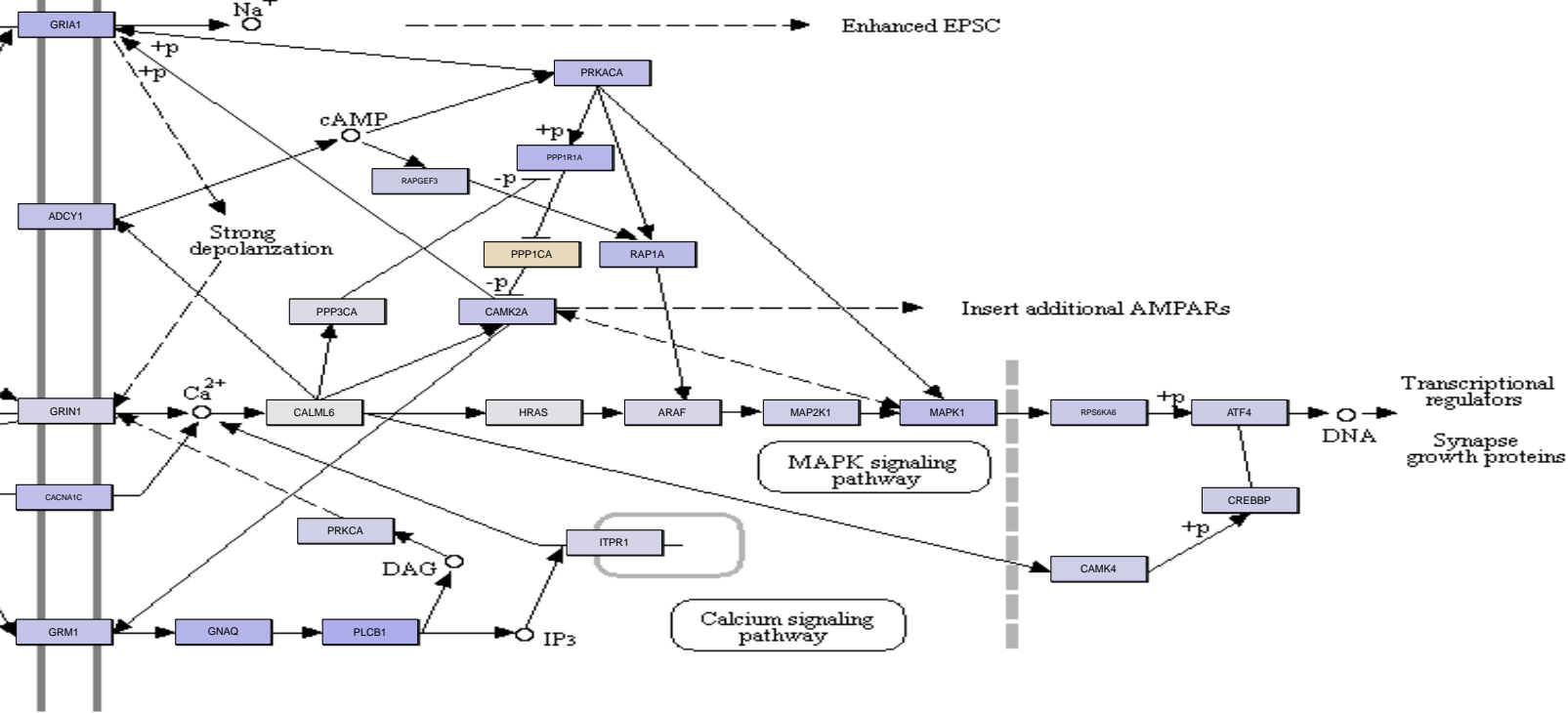
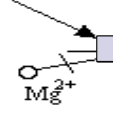
Dendritic spines of postsynaptic neuron  
(CA1 pyramidal neuron)



Strong afferent stimulation



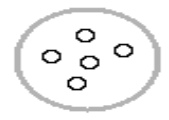
Glutamate



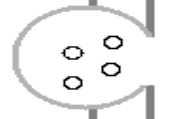
Presynaptic terminal (Schaffer collateral)

Glutamatergic synapse

Dendritic spines of postsynaptic neuron (CA1 pyramidal neuron)



Strong afferent stimulation



Glutamate

Mg<sup>2+</sup>

Ca<sup>2+</sup>

DAG

IP<sub>3</sub>

Na<sup>+</sup>

cAMP

Strong depolarization

Enhanced EPSC

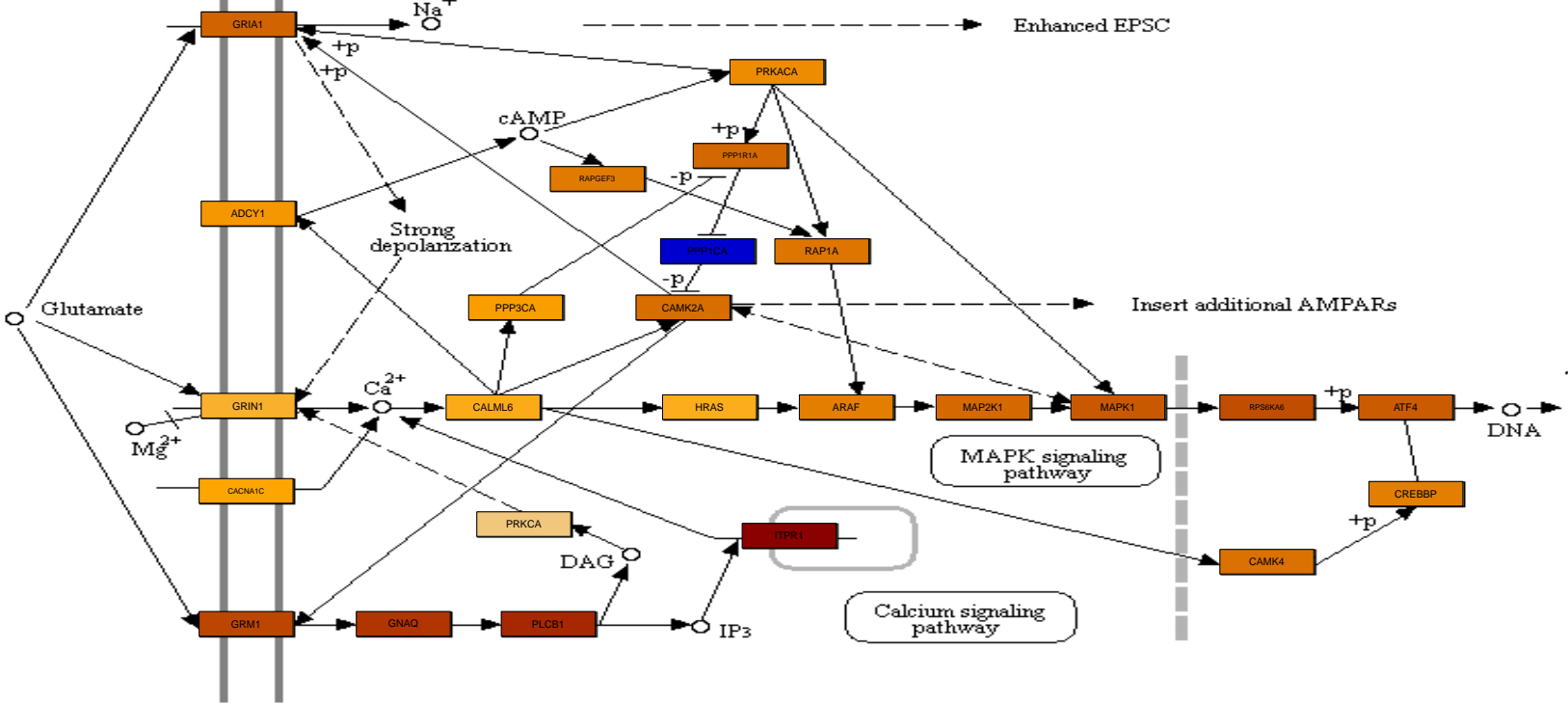
Insert additional AMPARs

MAPK signaling pathway

Calcium signaling pathway

Transcriptional regulators  
Synapse growth proteins

DNA

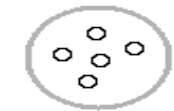


Long\_term\_potential  
group 4

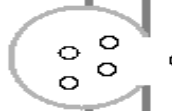
Presynaptic terminal  
(Schaffer collateral)

Glutamatergic synapse

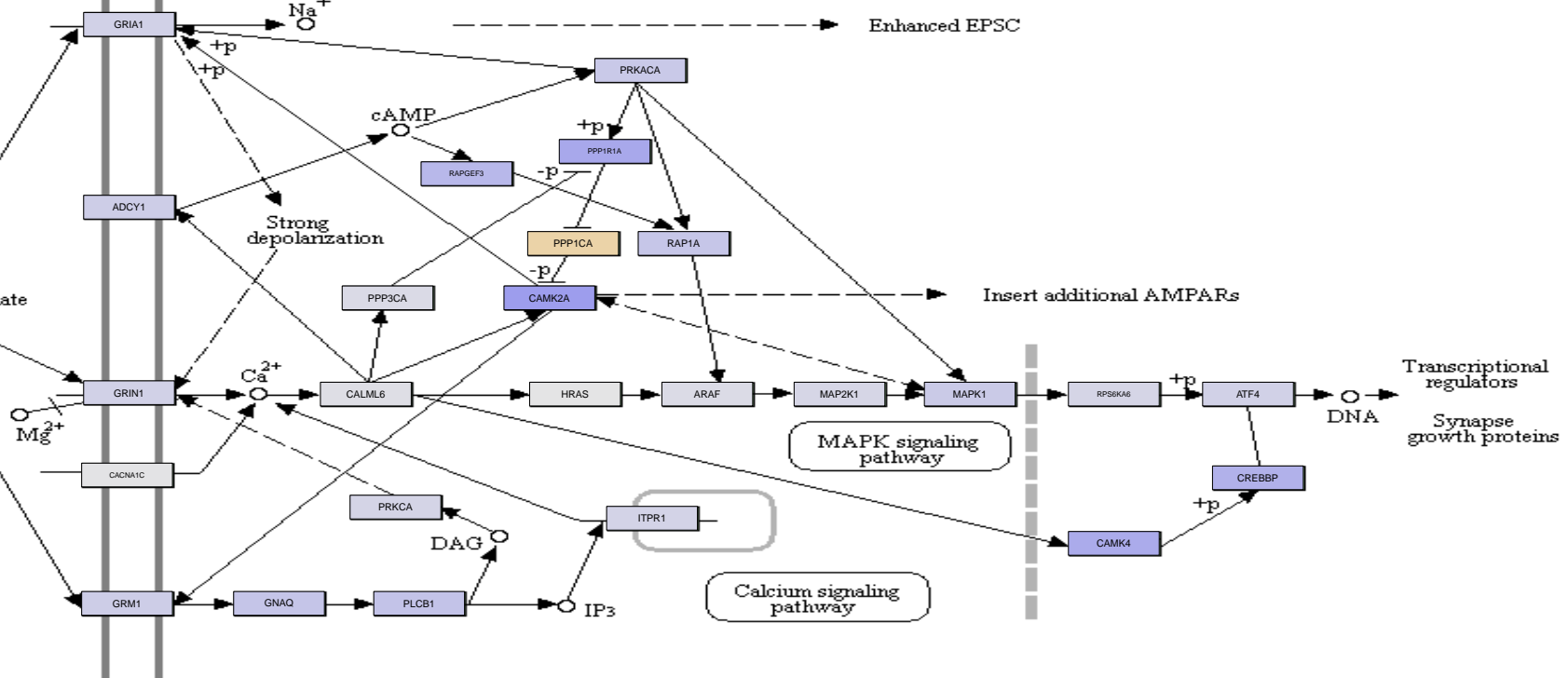
Dendritic spines of  
postsynaptic neuron  
(CA1 pyramidal neuron)



Strong afferent  
stimulation



Glutamate

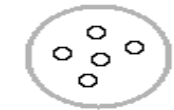


Long\_term\_potential  
group 5

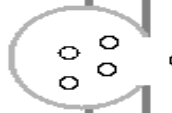
Presynaptic terminal  
(Schaffer collateral)

Glutamatergic synapse

Dendritic spines of  
postsynaptic neuron  
(CA1 pyramidal neuron)



Strong afferent  
stimulation



Glutamate

Mg<sup>2+</sup>

Ca<sup>2+</sup>

CALML6

DAG

IP<sub>3</sub>

Na<sup>+</sup>

cAMP

Strong  
depolarization

MAPK signaling  
pathway

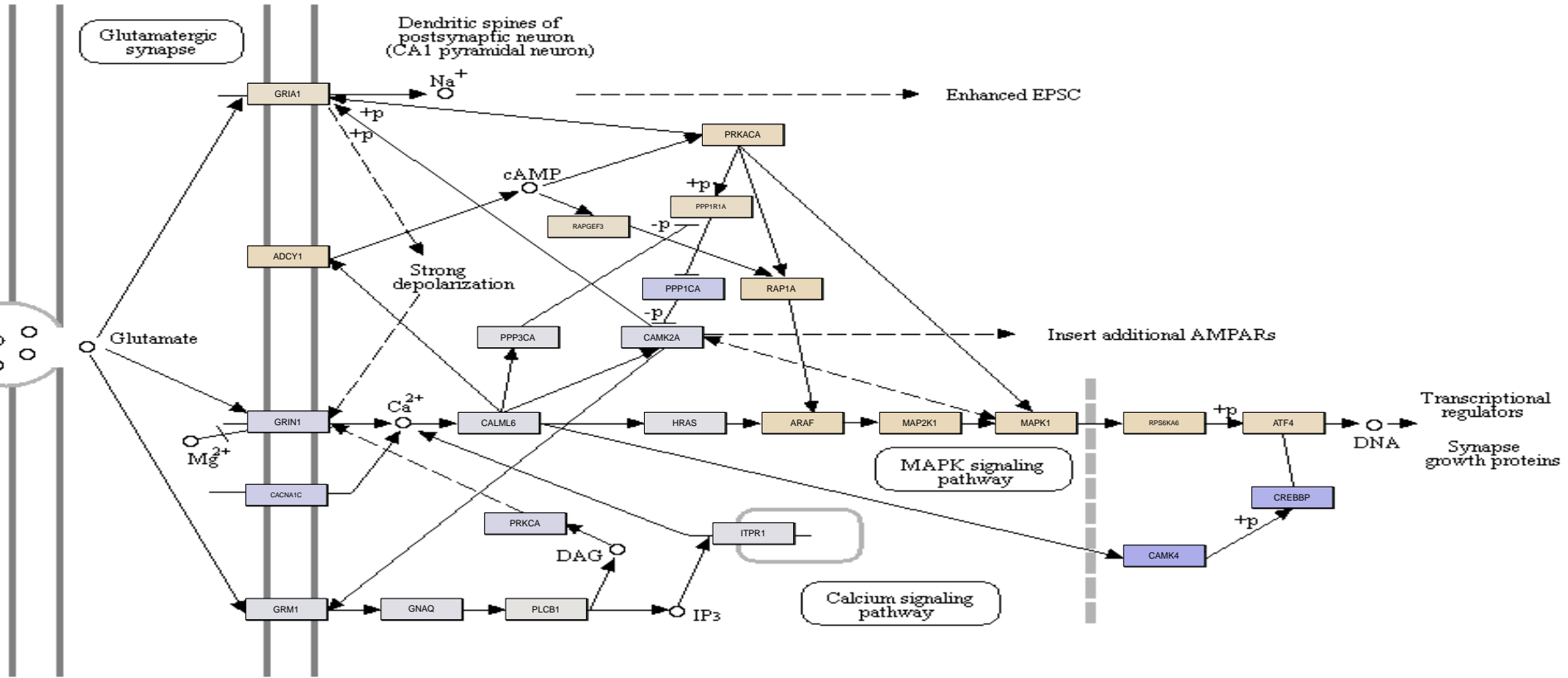
Calcium signaling  
pathway

Enhanced EPSC

Insert additional AMPARs

Transcriptional  
regulators  
Synapse  
growth proteins

DNA



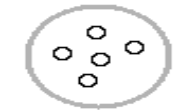


Long\_term\_potential  
group 6

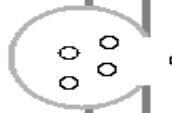
Presynaptic terminal  
(Schaffer collateral)

Glutamatergic synapse

Dendritic spines of  
postsynaptic neuron  
(CA1 pyramidal neuron)



Strong afferent  
stimulation



Glutamate

Mg<sup>2+</sup>

Ca<sup>2+</sup>

DAG

IP<sub>3</sub>

Na<sup>+</sup>

cAMP

IP<sub>3</sub>

Enhanced EPSC

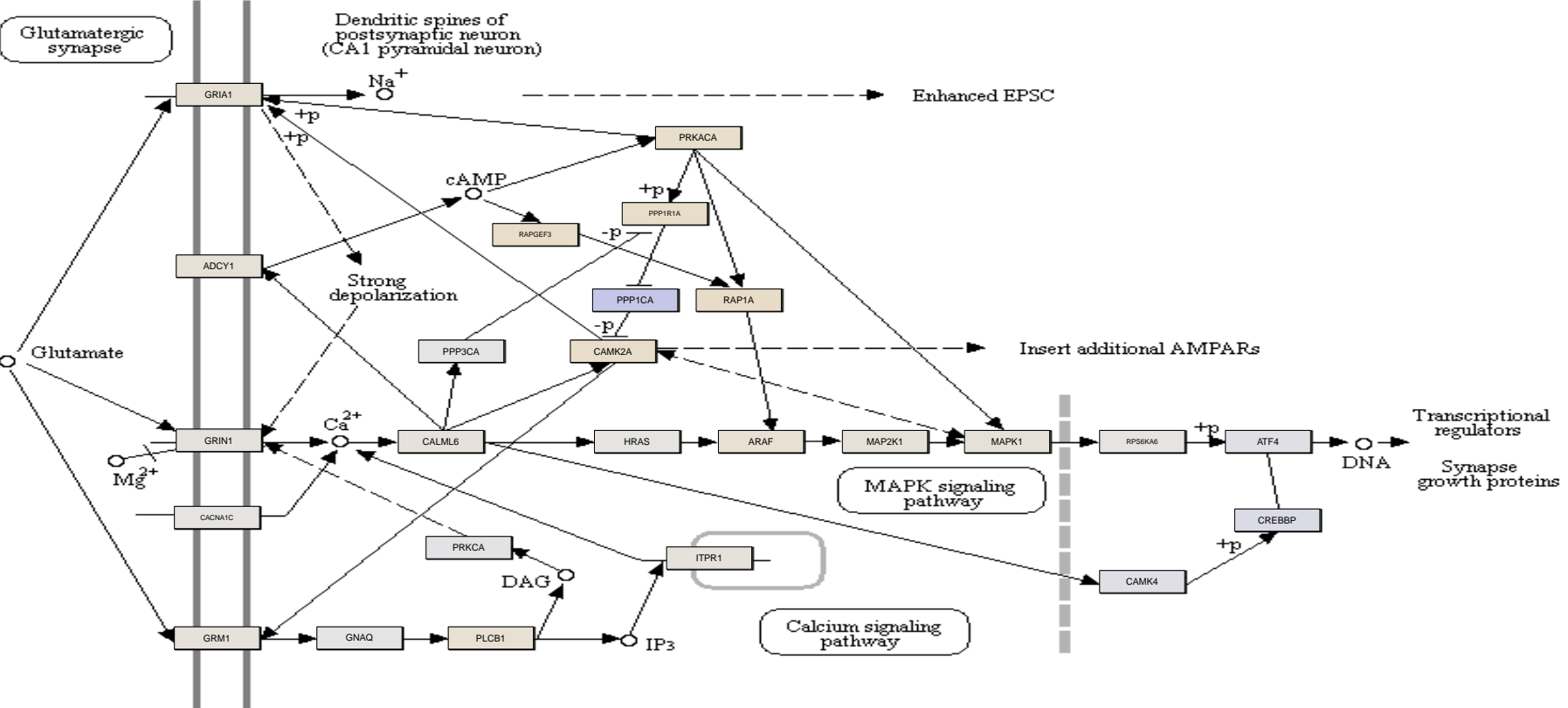
Insert additional AMPARs

MAPK signaling  
pathway

Calcium signaling  
pathway

Transcriptional  
regulators  
Synapse  
growth proteins

DNA

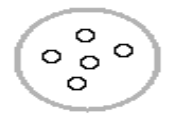


Long\_term\_potential  
group 7

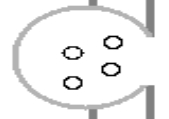
Presynaptic terminal  
(Schaffer collateral)

Glutamatergic synapse

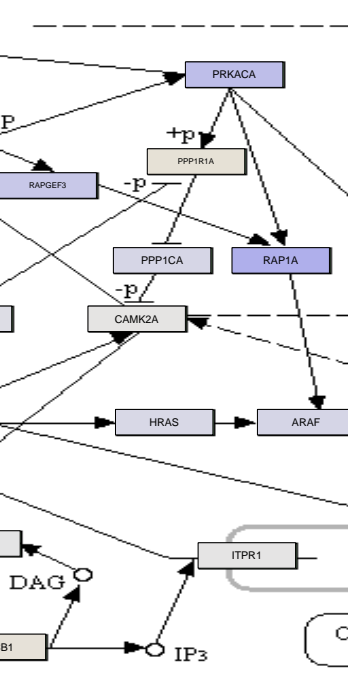
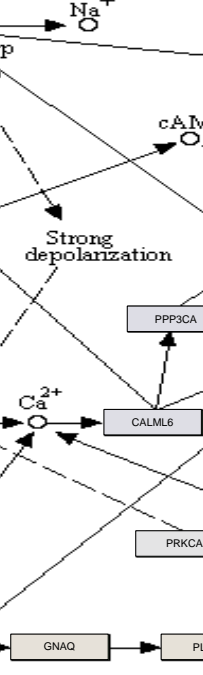
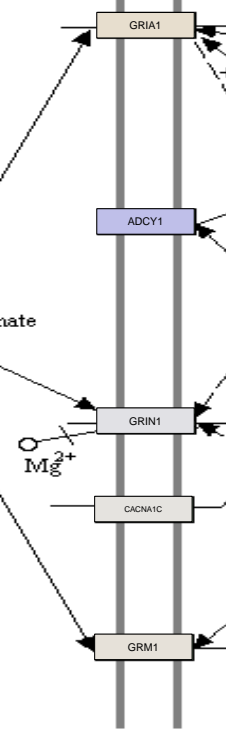
Dendritic spines of postsynaptic neuron  
(CA1 pyramidal neuron)



Strong afferent stimulation



Glutamate



Calcium signaling pathway

MAPK signaling pathway

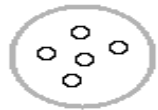
Enhanced EPSC

Insert additional AMPARs

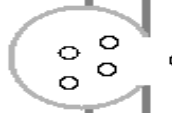
Transcriptional regulators  
Synapse growth proteins

DNA

Presynaptic terminal  
(Schaffer collateral)



Strong afferent  
stimulation



Glutamatergic  
synapse

Dendritic spines of  
postsynaptic neuron  
(CA1 pyramidal neuron)

