

# Action potential versus postsynaptic potential

Comparison of action potential (AP) and postsynaptic potential (PSP):

parametr	AP	PSP
significance	transmission of excitement without quality change (noise) over long distances	processing, connecting individual PSPs and deciding whether a new AP should be created
behaviour	all or nothing - the transmission is digital (even if it happens to change along the way, the resulting cell will only evaluate whether the signal arrived or not)	continuous, can have different values
amplitude	about 100 mV	1-10 mV
duration	about 10-40 ms	1-5 ms
ion channels	voltage controlled	chemically controlled
permeability especially for	Na <sup>+</sup> , K <sup>+</sup> (fast channel)	K <sup>+</sup> (leak channel)
localization	axons	postsynaptic membrane (soma = neuron body), dendrites)
spread (to distance)	no decrement (no amplitude reduction, up to meters)	with decrement (signal strength decreases, 10-100 µm)

## Sources

### Related Articles

- Membrane potential and its changes
- Ion channels
- Action potential
- Goldman's equation