Precise frequency oscillations in the hippocampus have been associated with multiple brain functions, that can range from memory to sleep regulation. Fine regulation and synchronization of beta and gamma rhythms have been suggested as a major information routing mechanism in the brain. Nonetheless, a full understanding of the single components of this signal is still missing. Notably, it is still difficult to differentiate between competing packages of information within highly distributed neural networks and various signal representations. For these reasons, we propose NetSAP (Network State And Pathways), an analysis method which is able to recognize different voltage patterns in a controlled simulation. The model has been tailored to further understand the important role of GABAergic inhibitory interneurons in the hippocampus and their fundamental contribution in controlling the information flow. This aspect is crucial to discern the real sources of neurological disorders as for the unconstrained excitation in epilepsy.