Resting state electroencephalography was used for 36 Parkinson's disease patients and 36 healthy controls matched for age and gender. Parkinson's disease patients showed disproportionally higher bilateral gamma activity in the bottom-up stream and higher left alpha2 connectivity in the top-down stream when compared to age-matched controls. An additional cross-frequency coupling analysis showed that Parkinson's patients have higher alpha2-gamma coupling in the right posterior parietal cortex, which is part of the top-down stream. Higher coupling in this region was also associated with lower severity of motor symptoms in Parkinson's disease. This study provides evidence that in Parkinson's disease, the activity in gamma frequency band and connectivity in alpha2 frequency band is discordant between top-down and bottom-up attention streams [1].

1)
Bin Yoo H, Concha EO, De Ridder D, Pickut BA, Vanneste S. The Functional Alterations in Top-Down Attention Streams of Parkinson's disease Measured by EEG. Sci Rep. 2018 Jul 13;8(1):10609. doi: 10.1038/s41598-018-29036-y. PubMed PMID: 30006636.