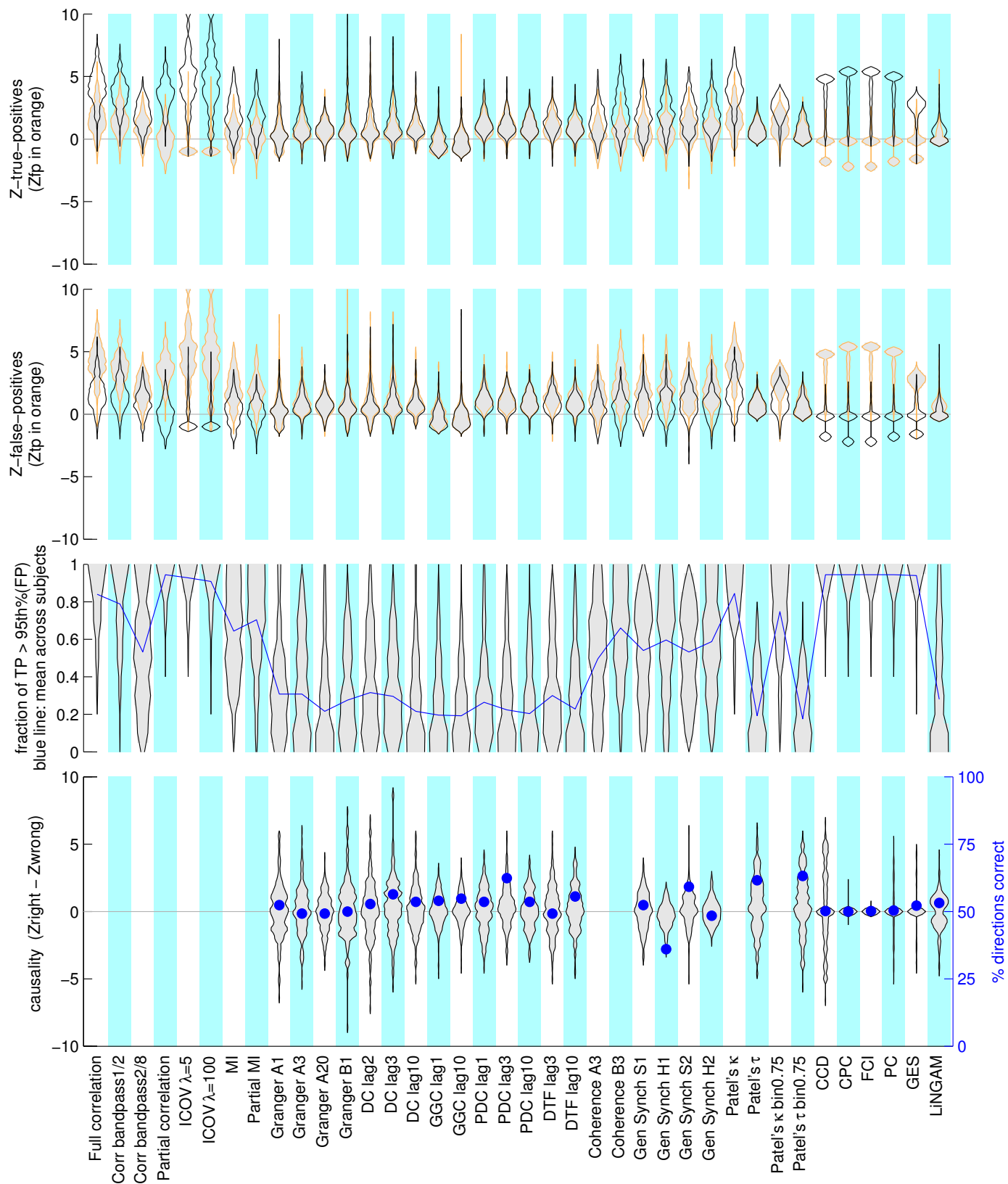
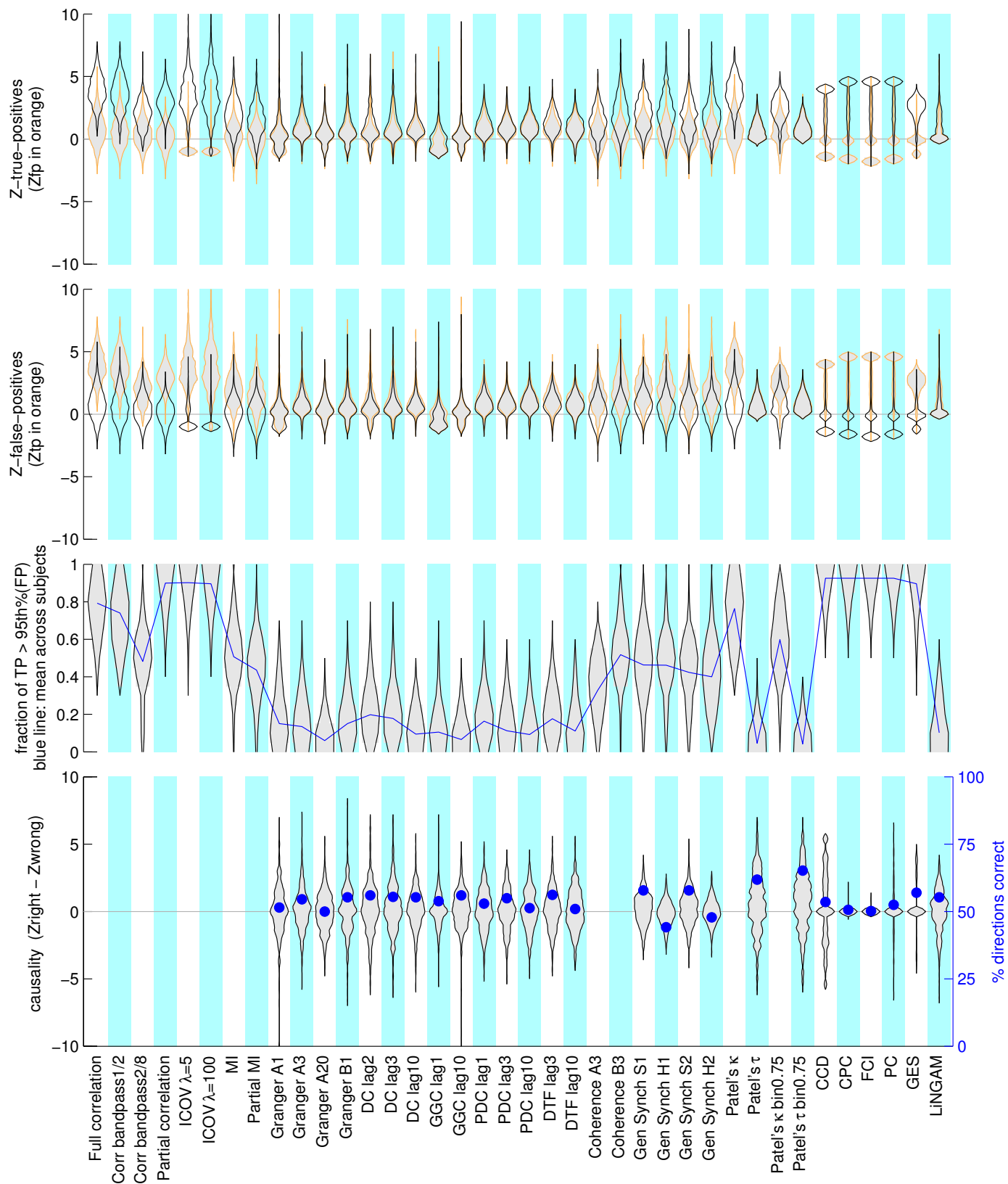


Supplementary Information

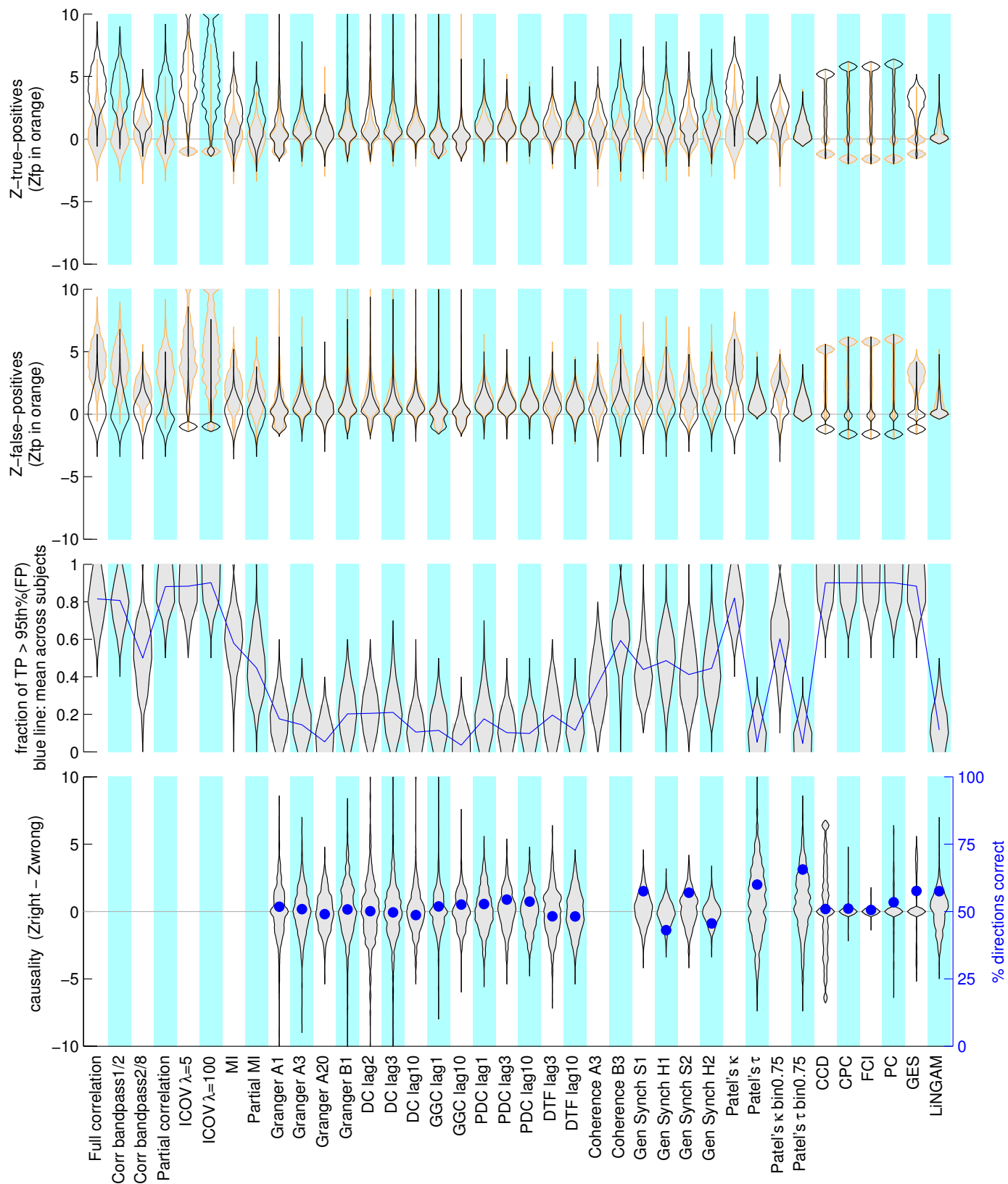
The following figures show the full results from all simulations. See the main text for discussion of the results.



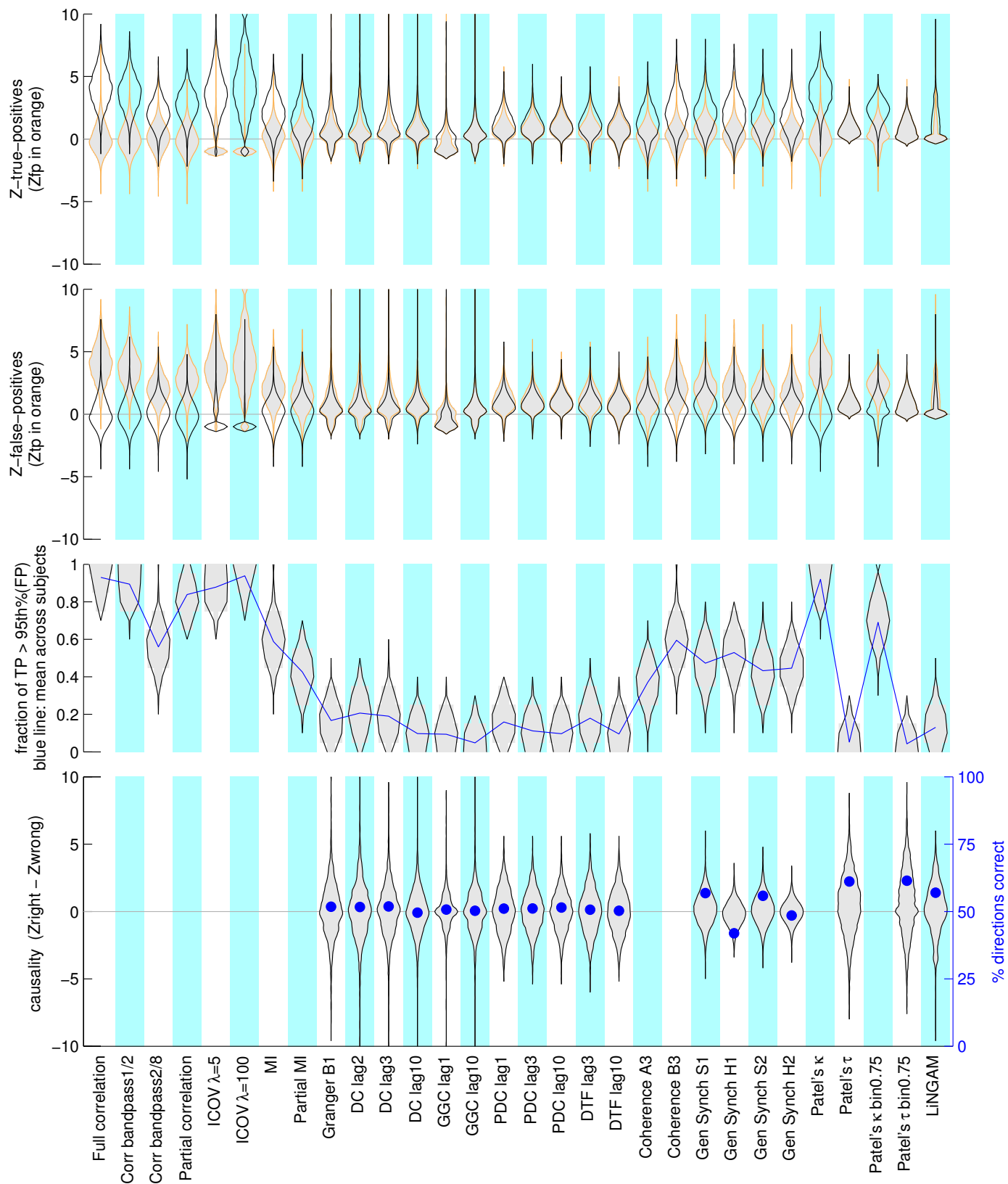
Simulation 1 (5 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s)

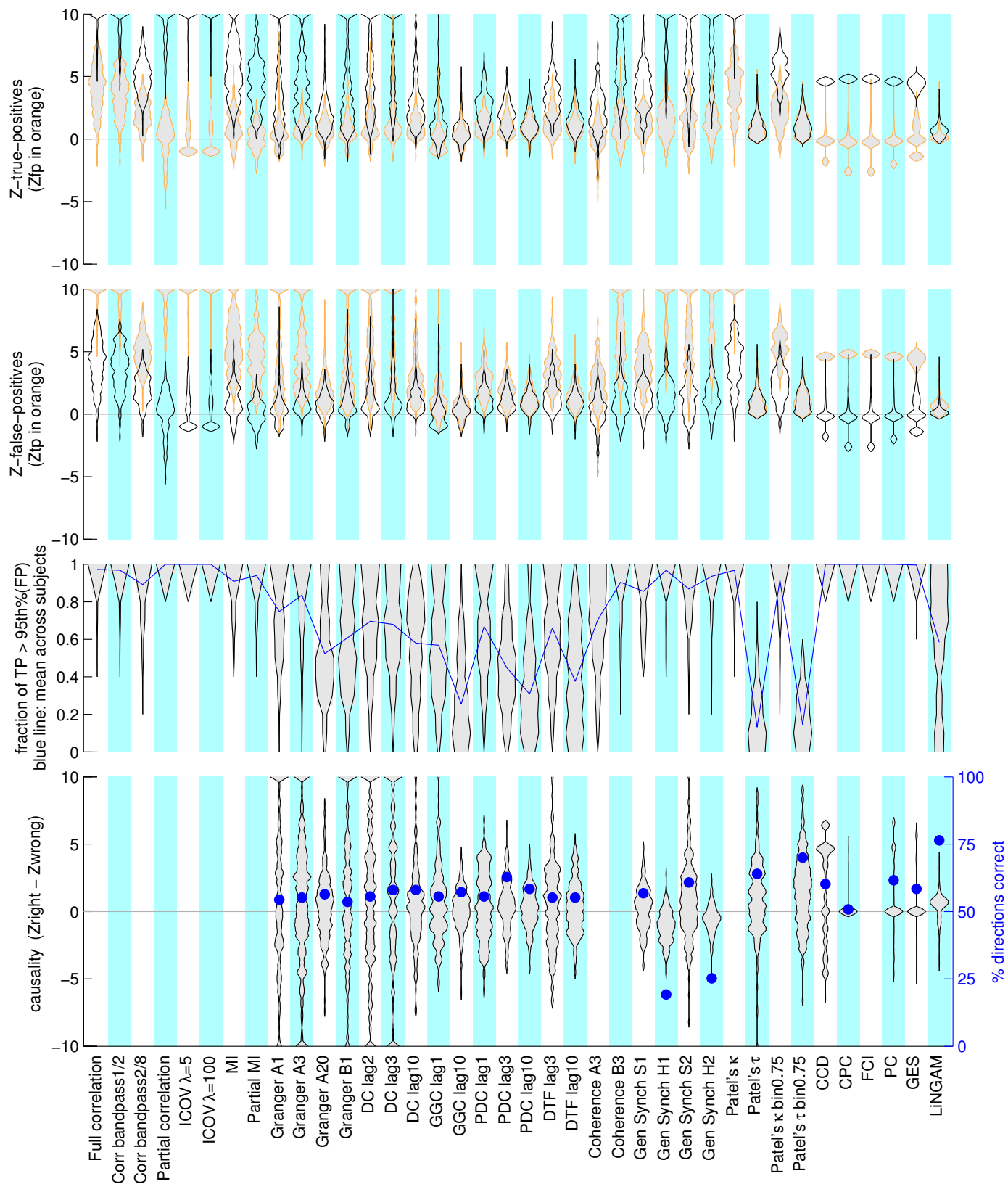


Simulation 2 (10 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s)

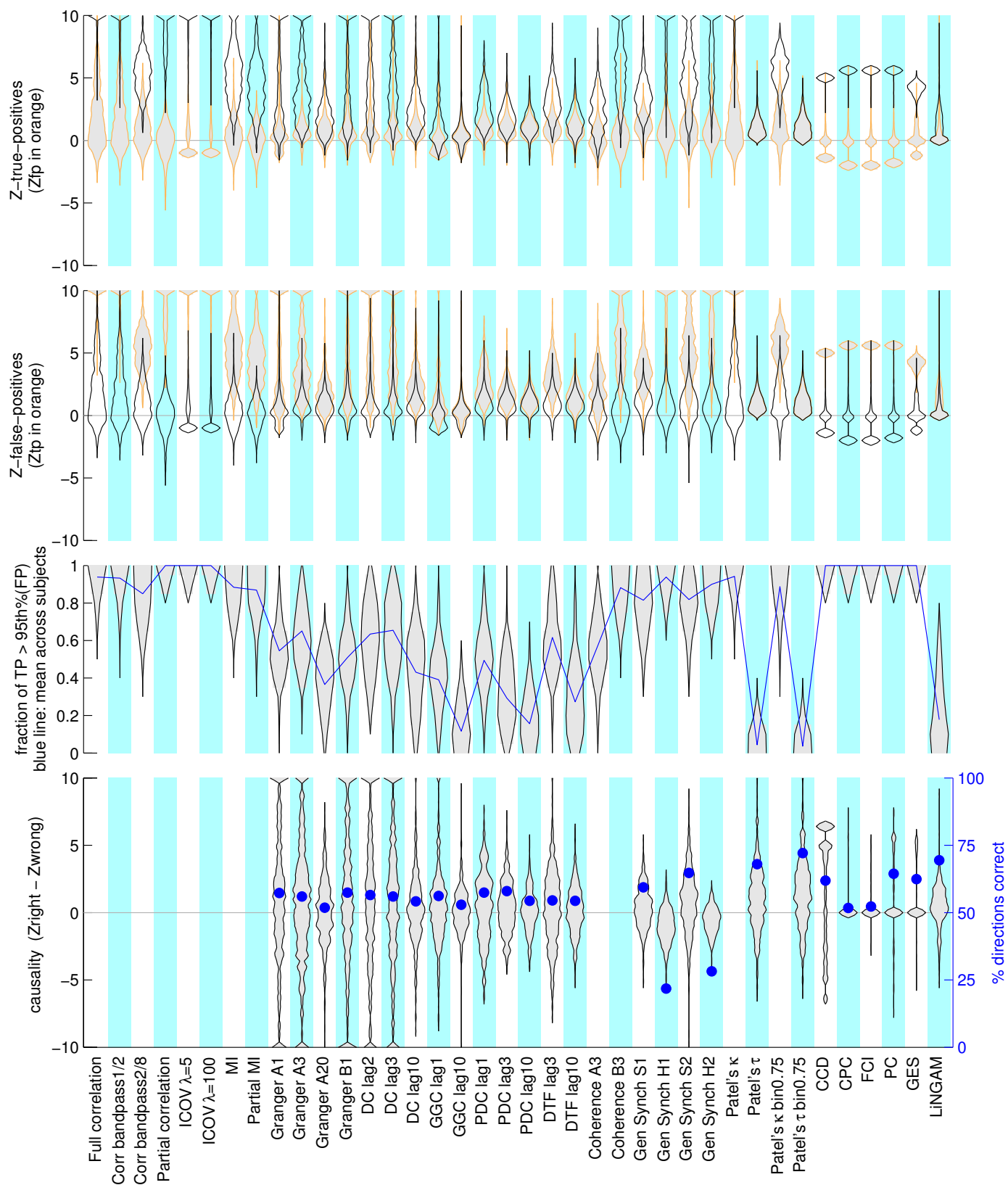


Simulation 3 (15 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s)

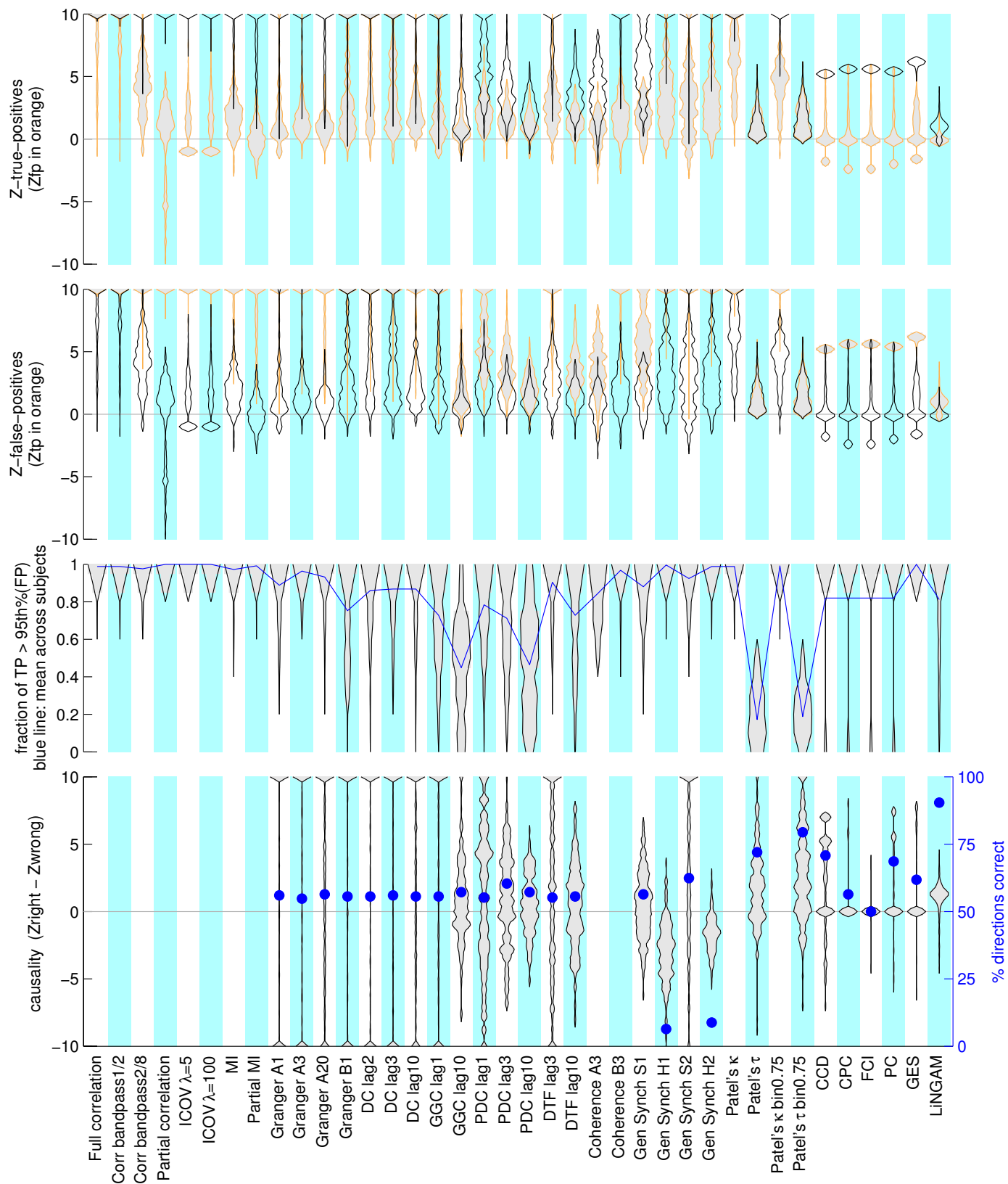




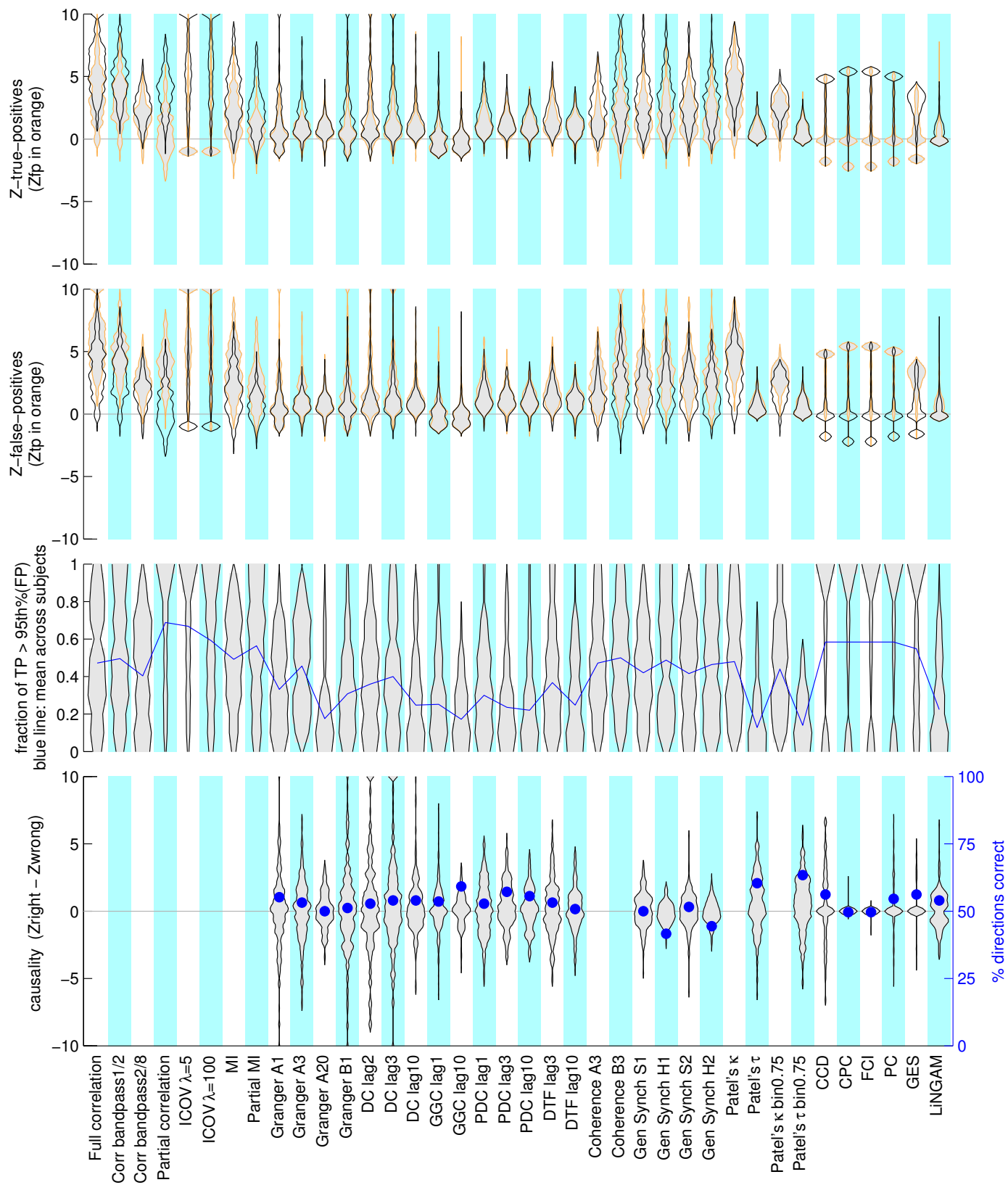
Simulation 5 (5 nodes, 60 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s)



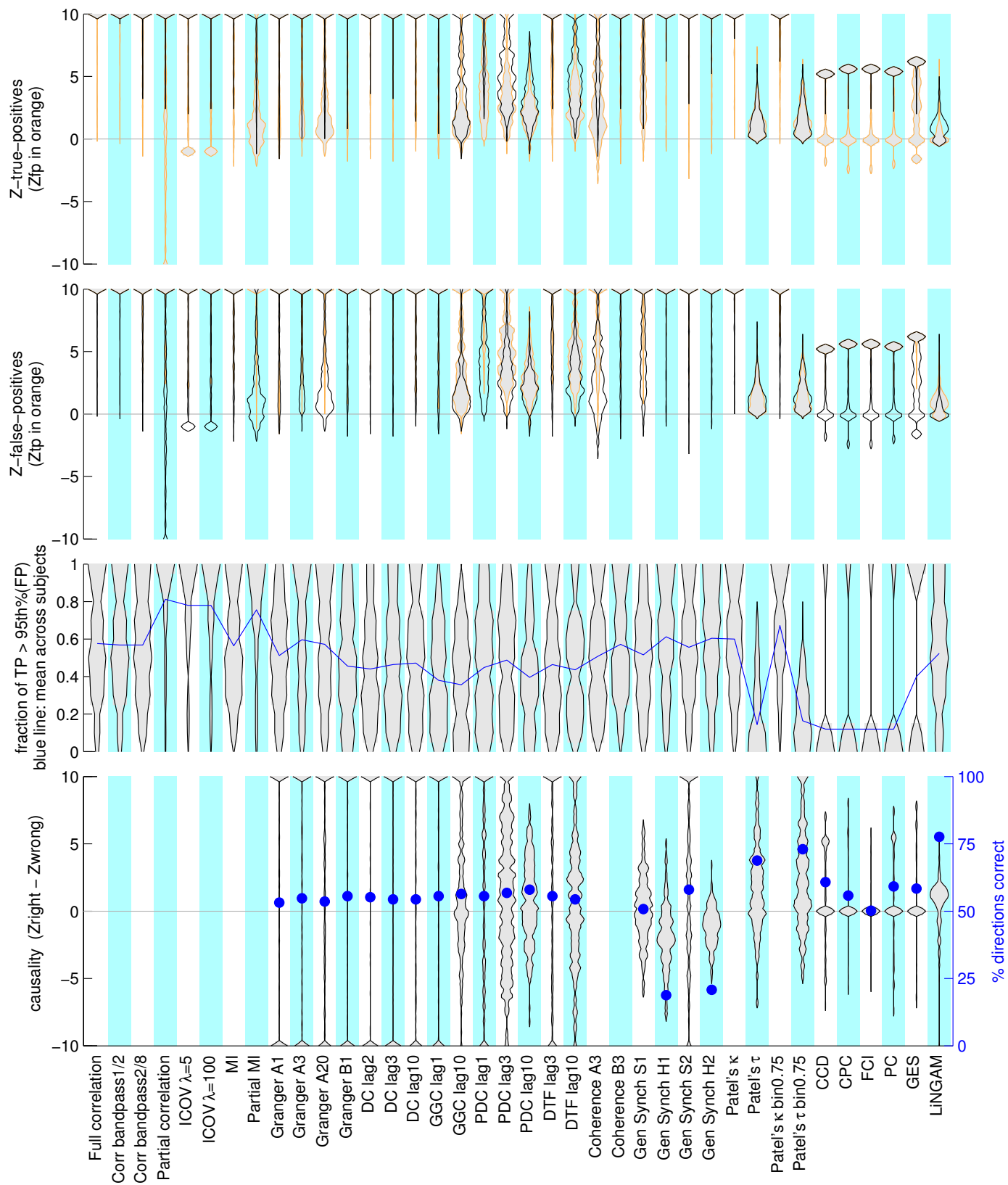
Simulation 6 (10 nodes, 60 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s)



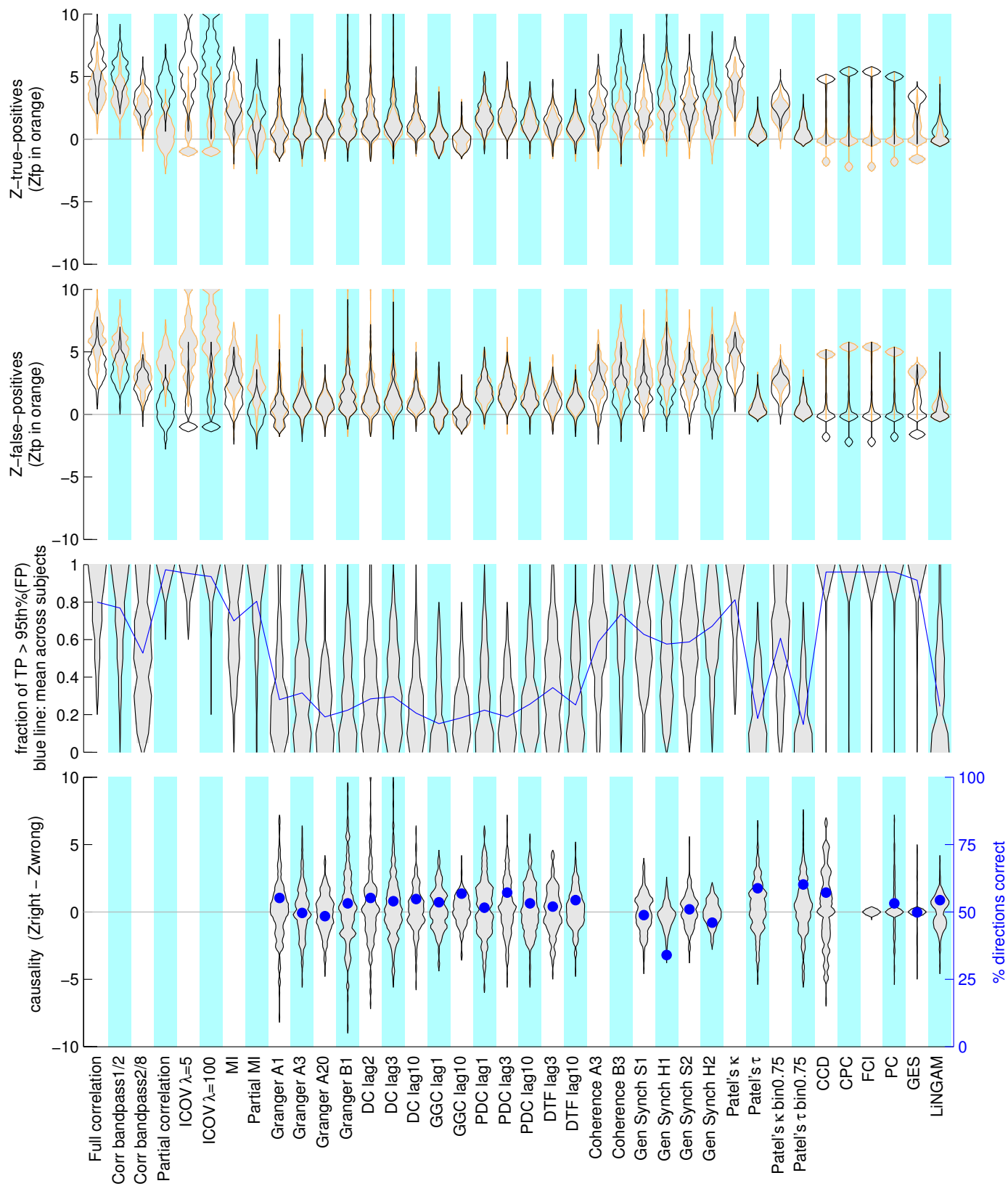
Simulation 7 (5 nodes, 250 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s)



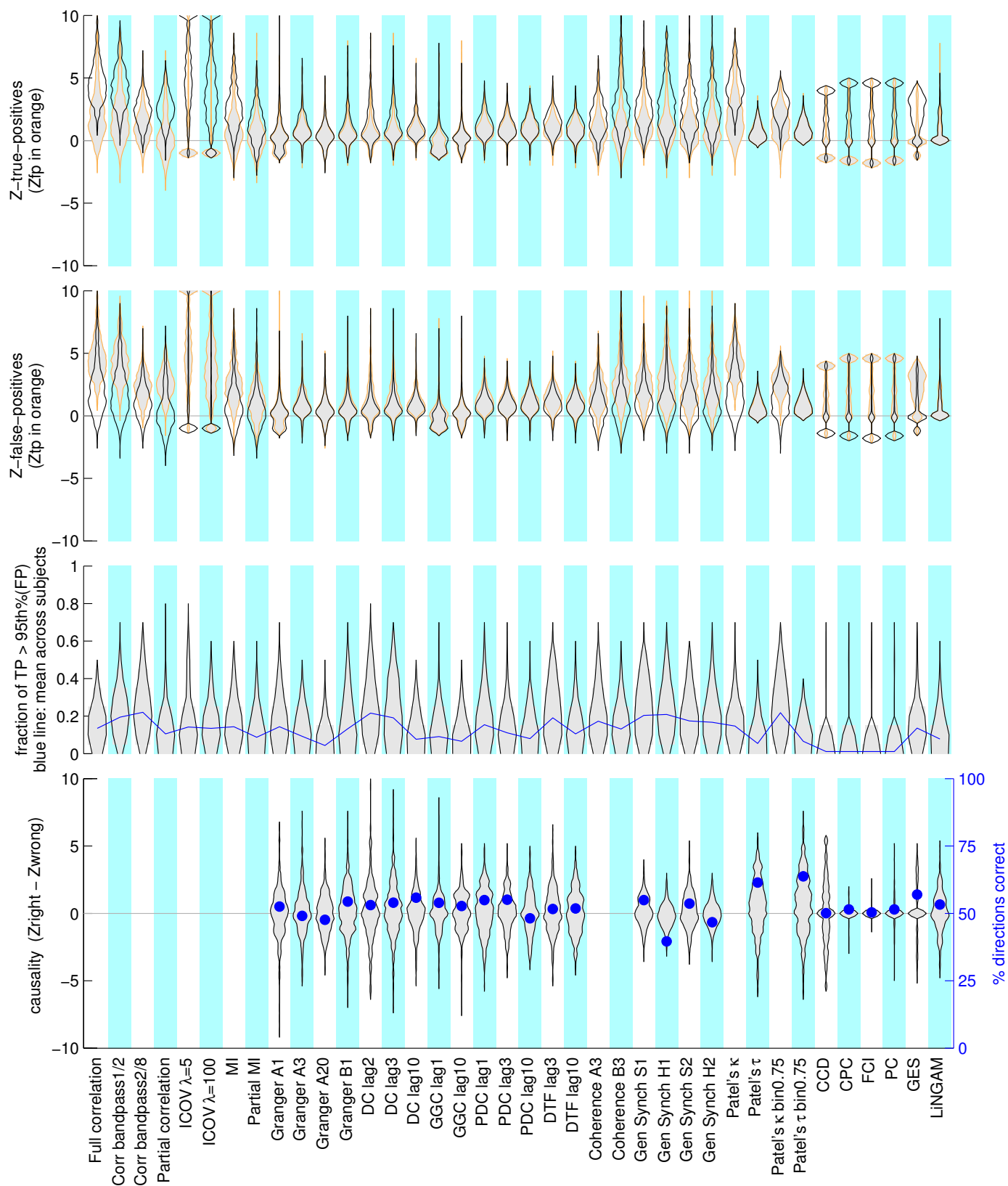
Simulation 8 (5 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s, shared inputs)



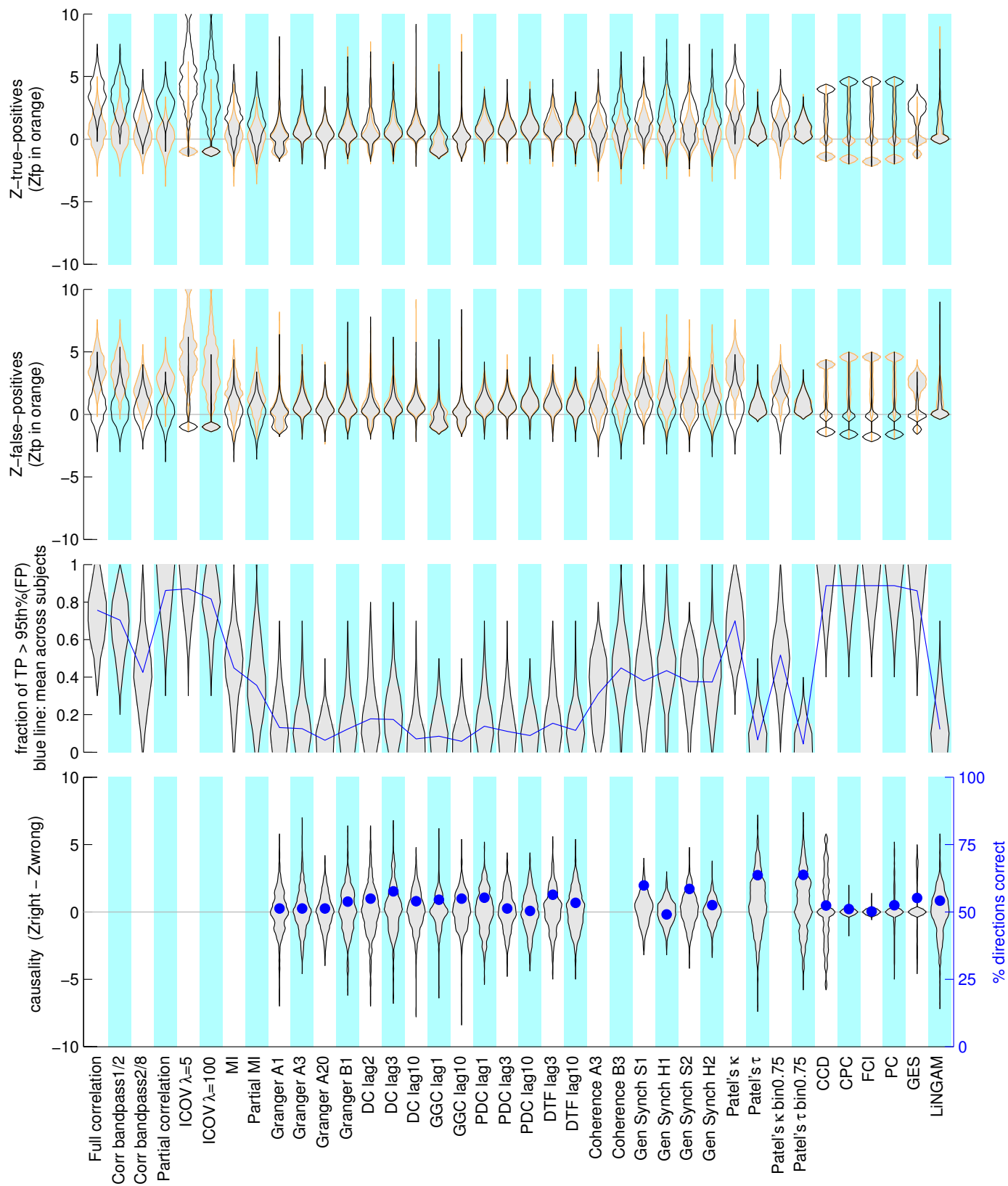
Simulation 9 (5 nodes, 250 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s, shared inputs)



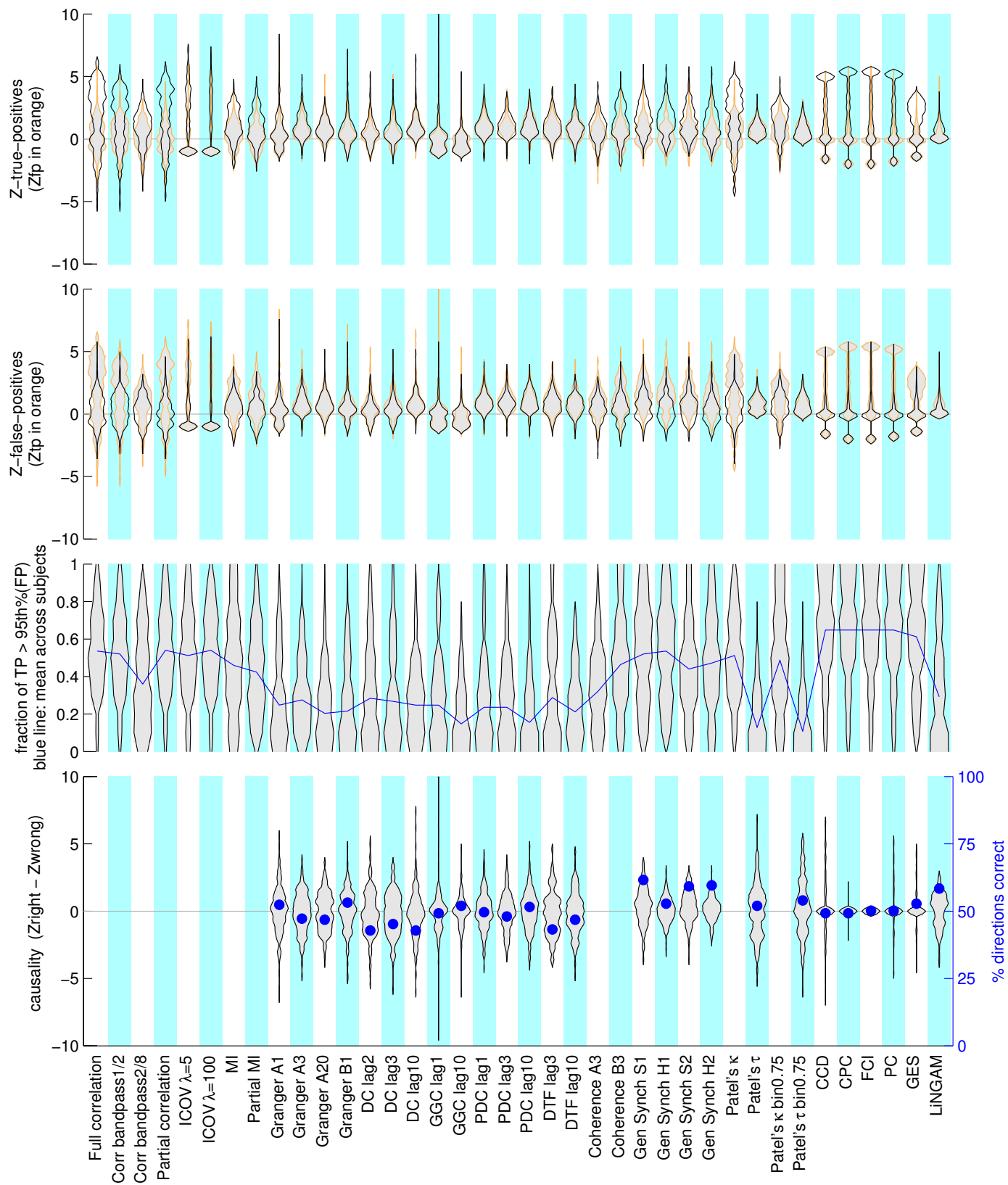
Simulation 10 (5 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s, global mean confound)



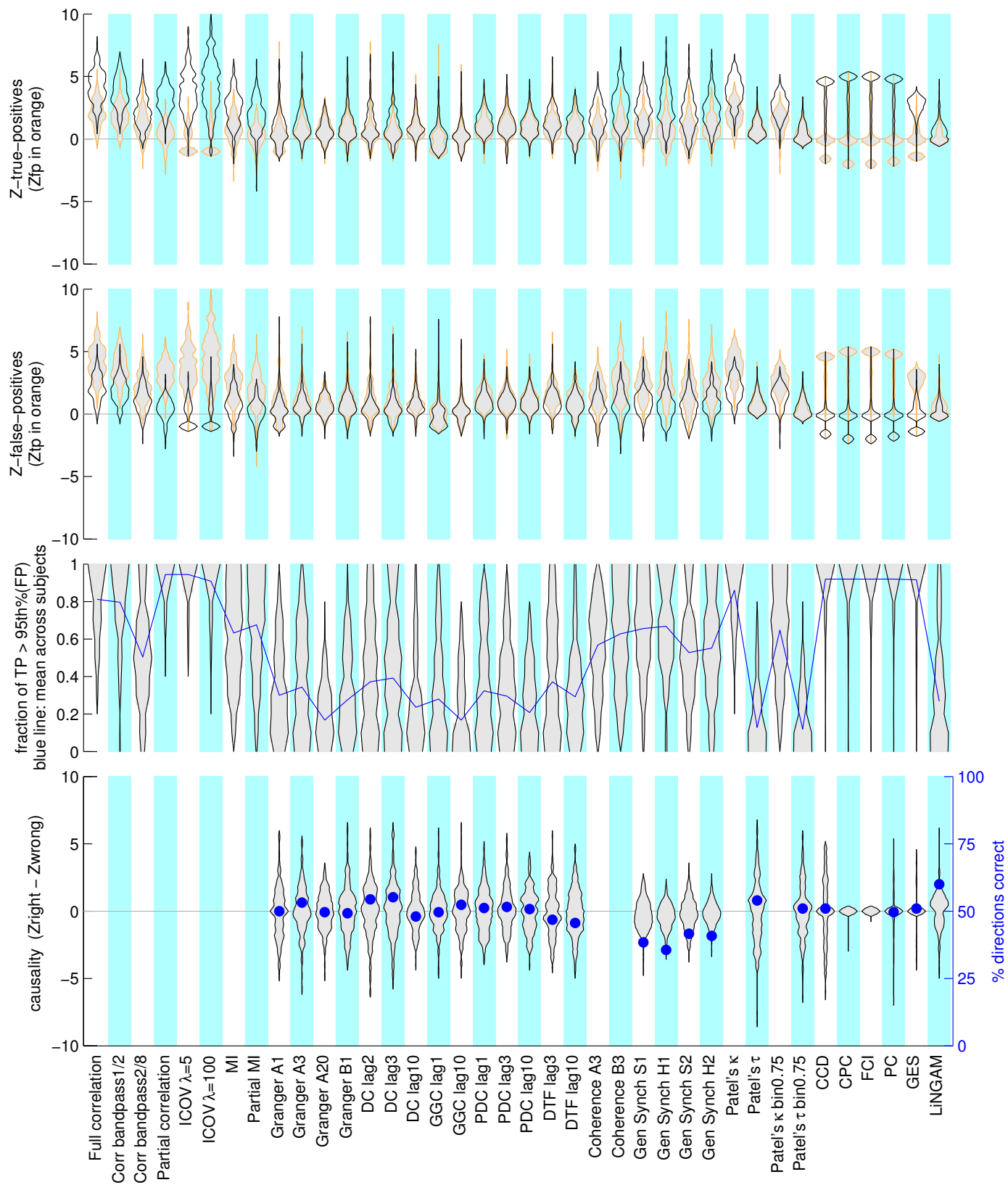
Simulation 11 (10 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s, bad ROIs (timeseries mixed with each other))



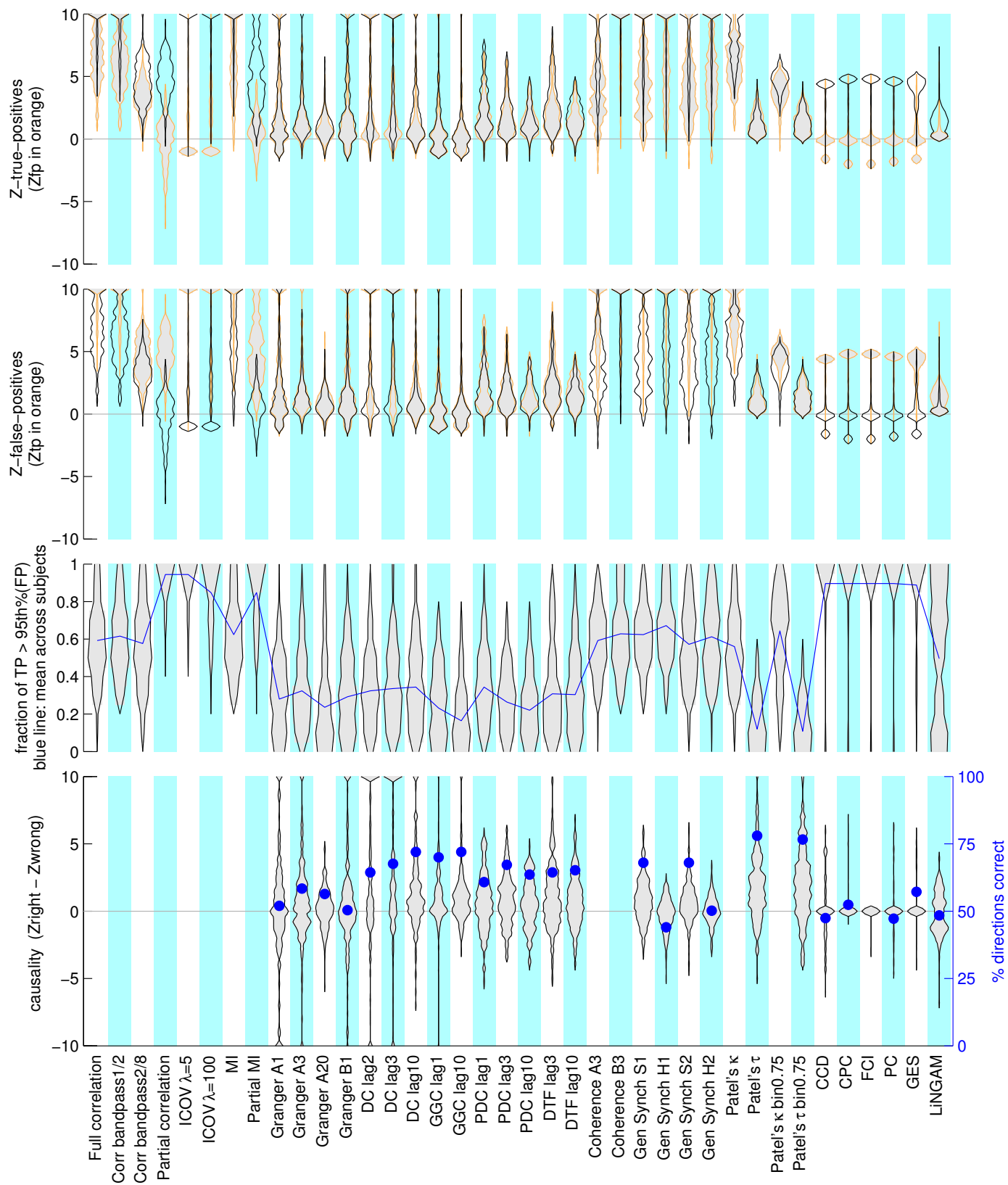
Simulation 12 (10 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s, bad ROIs (new random timeseries mixed in))



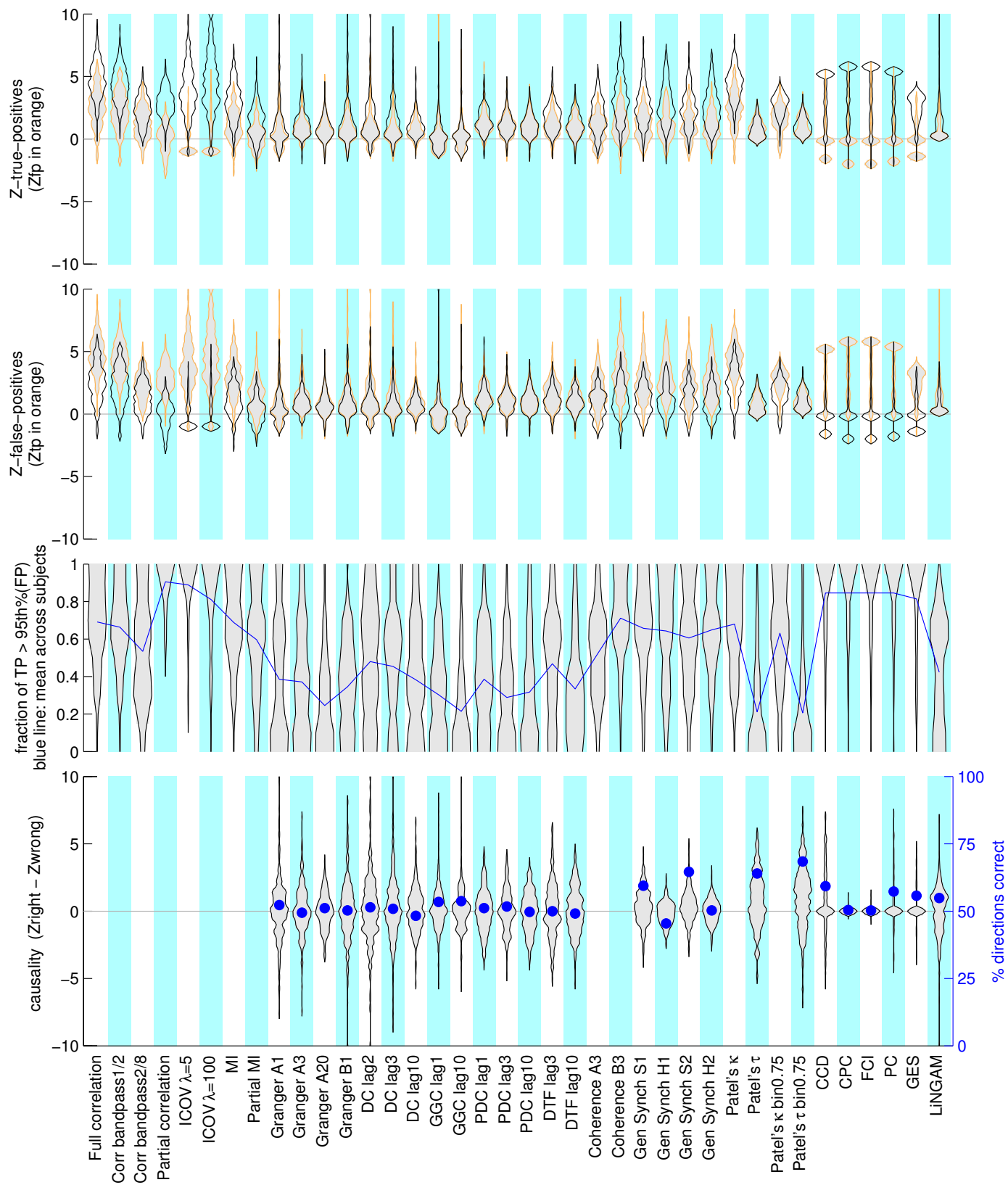
Simulation 13 (5 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s, backwards connections)



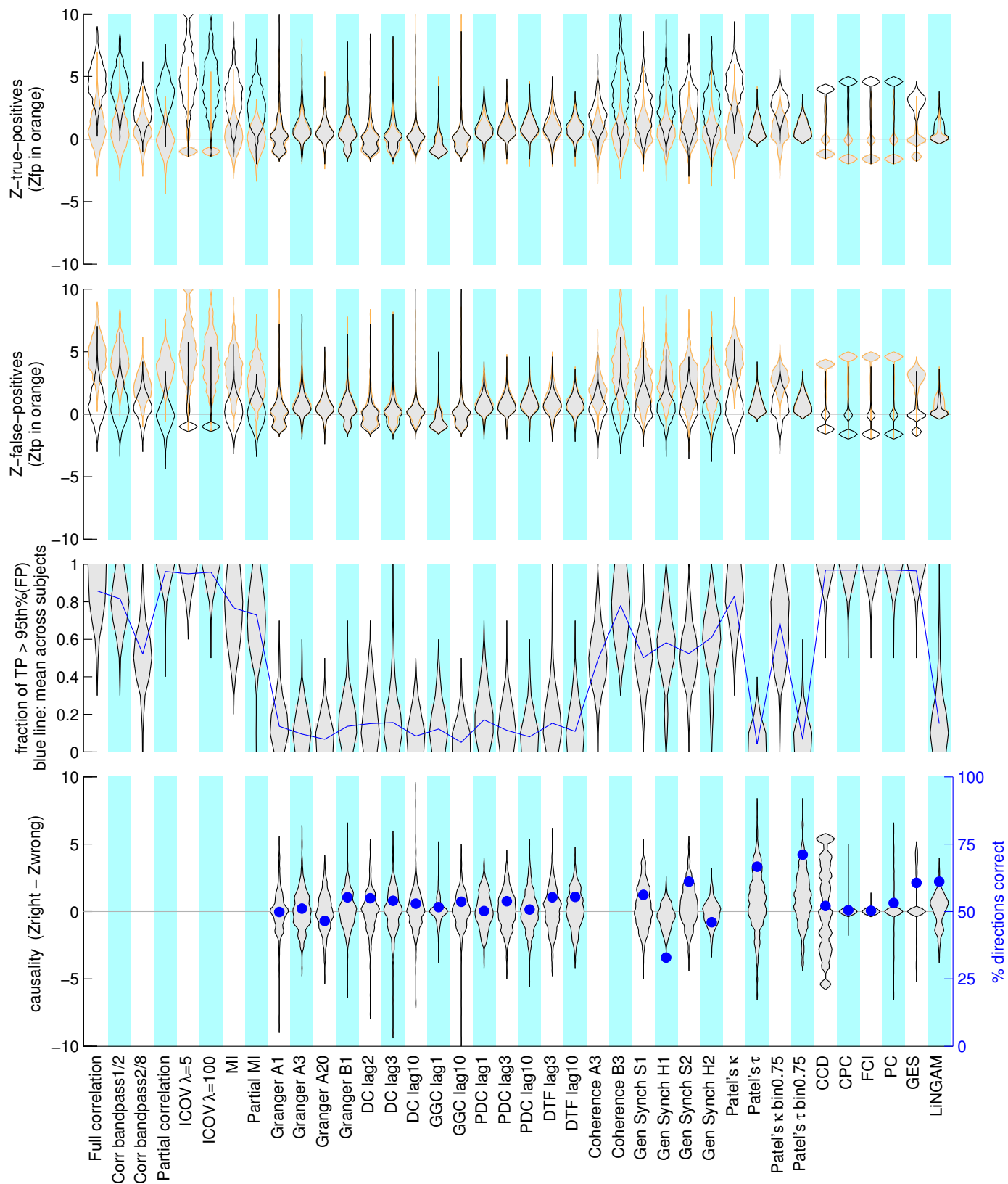
Simulation 14 (5 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s, cyclic connections)



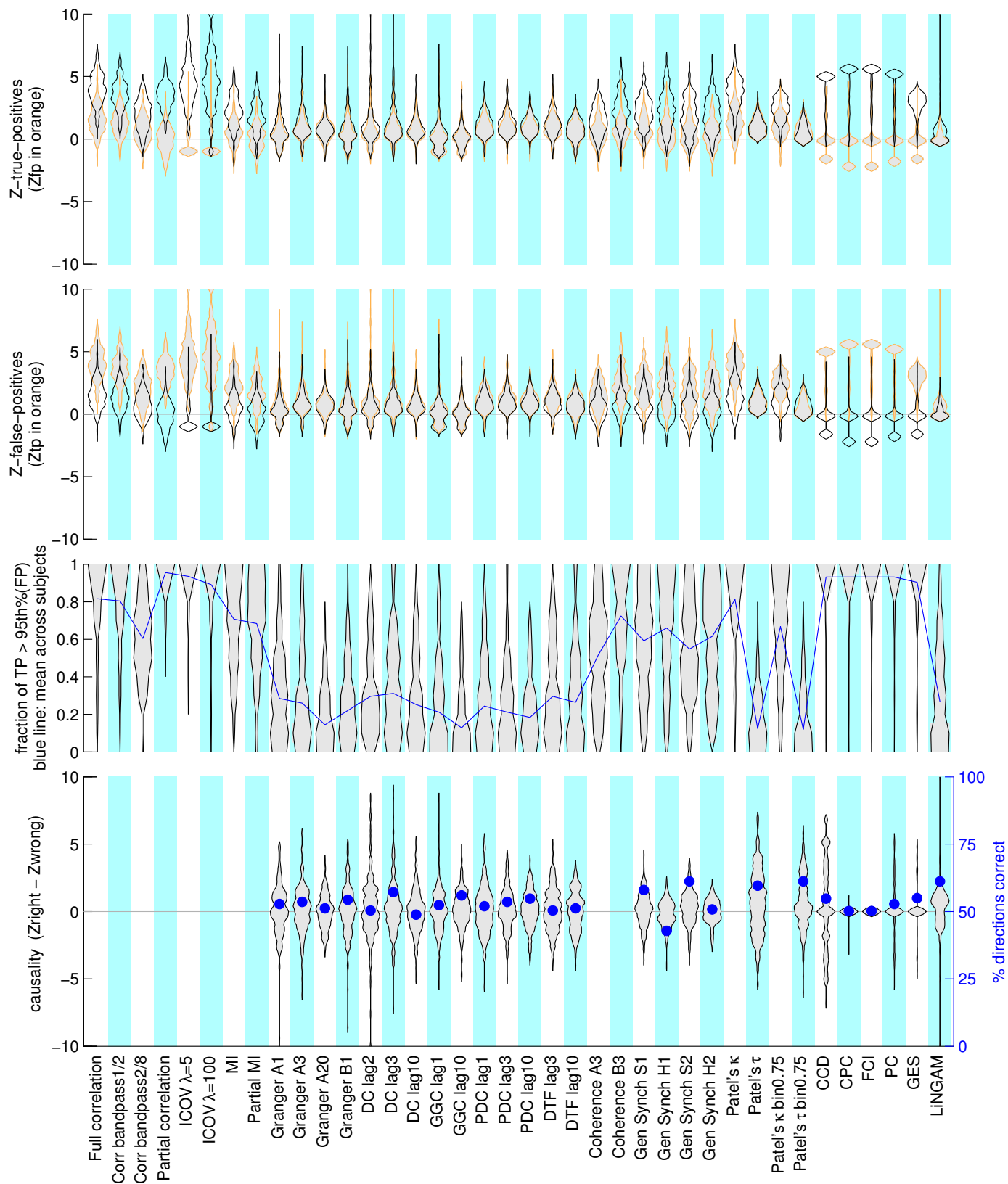
Simulation 15 (5 nodes, 10 minute sessions, TR=3.00s, noise=0.1%, HRFstd=0.5s, stronger connections)



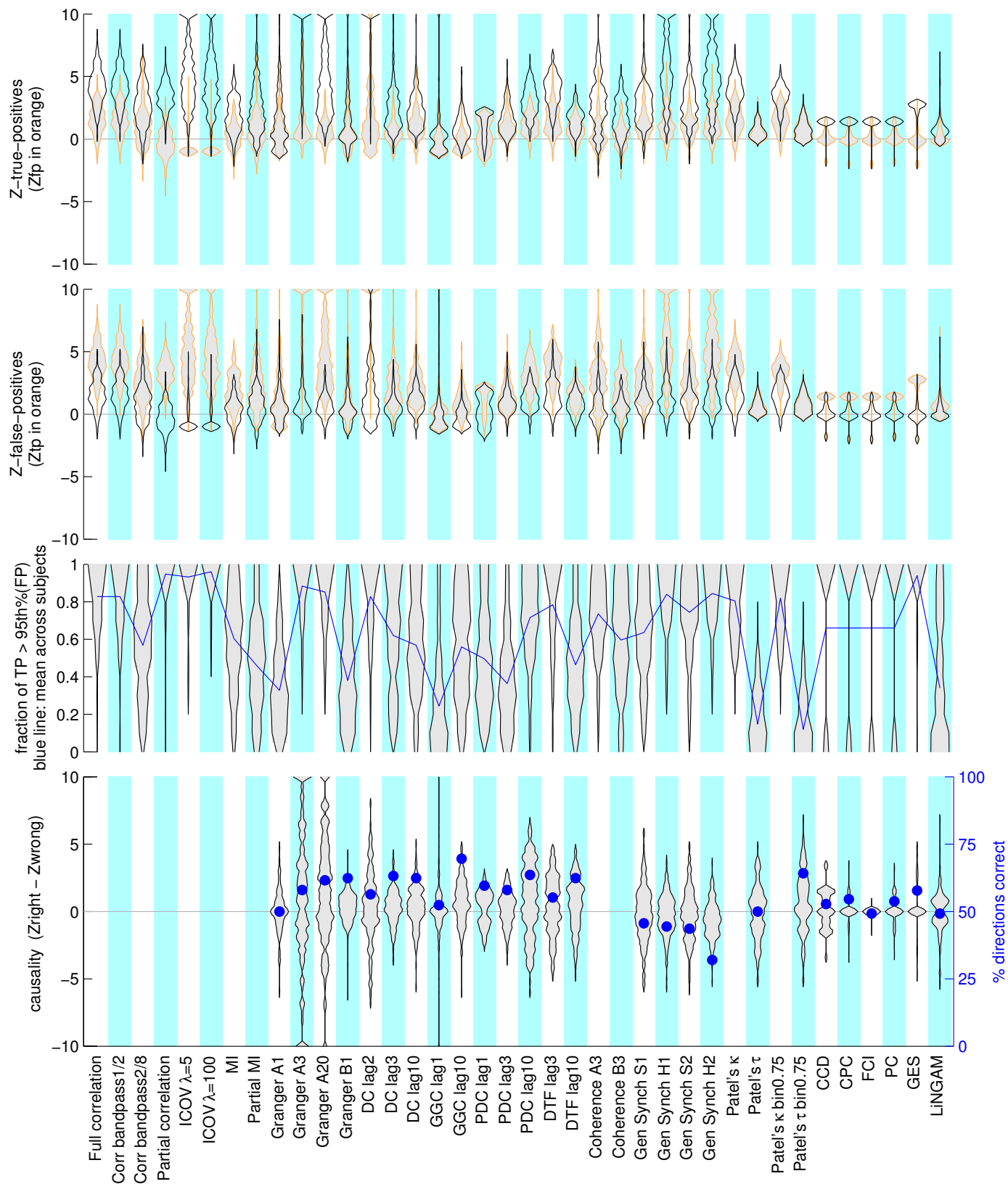
Simulation 16 (5 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s, more connections)



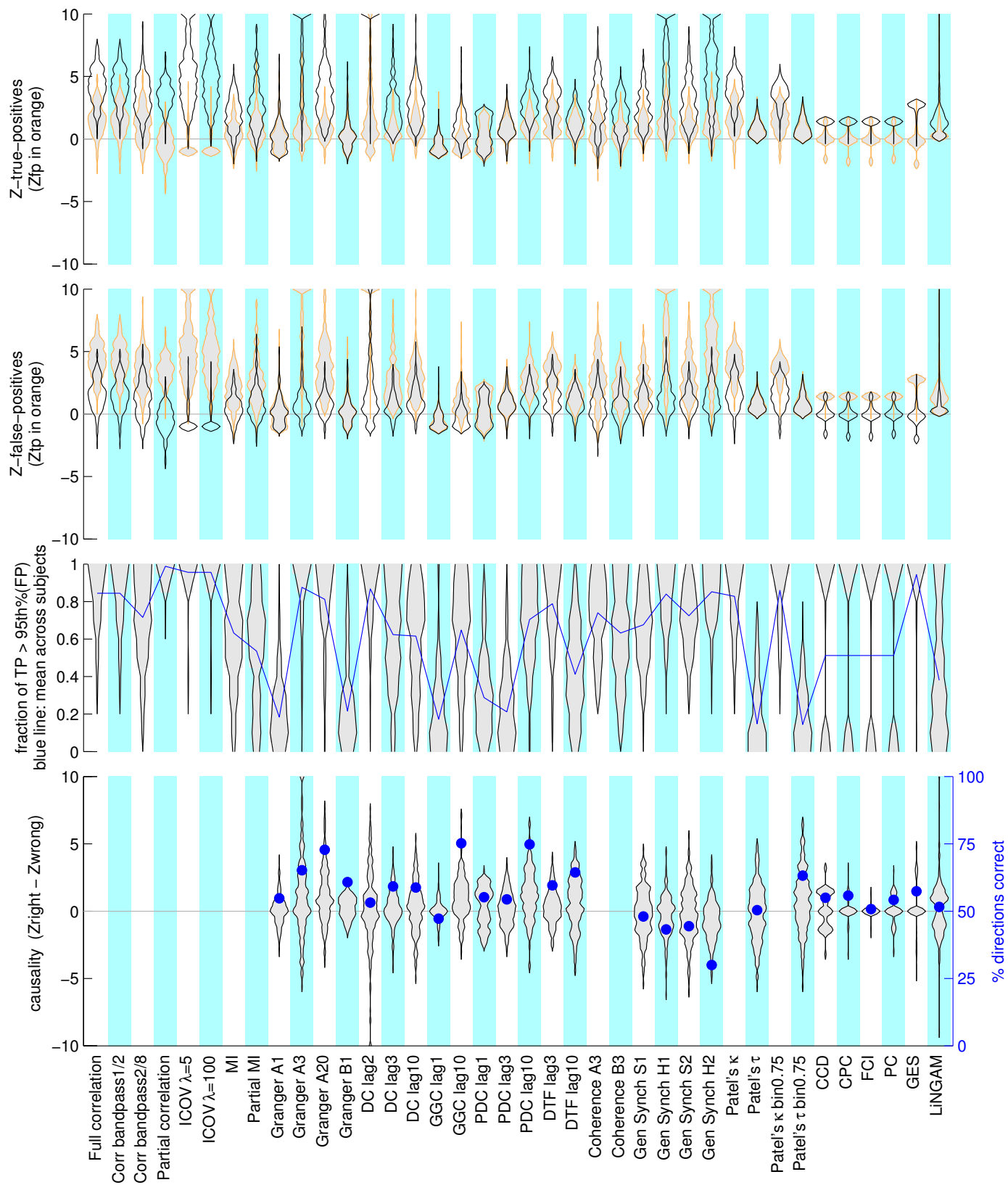
Simulation 17 (10 nodes, 10 minute sessions, TR=3.00s, noise=0.1%, HRFstd=0.5s)



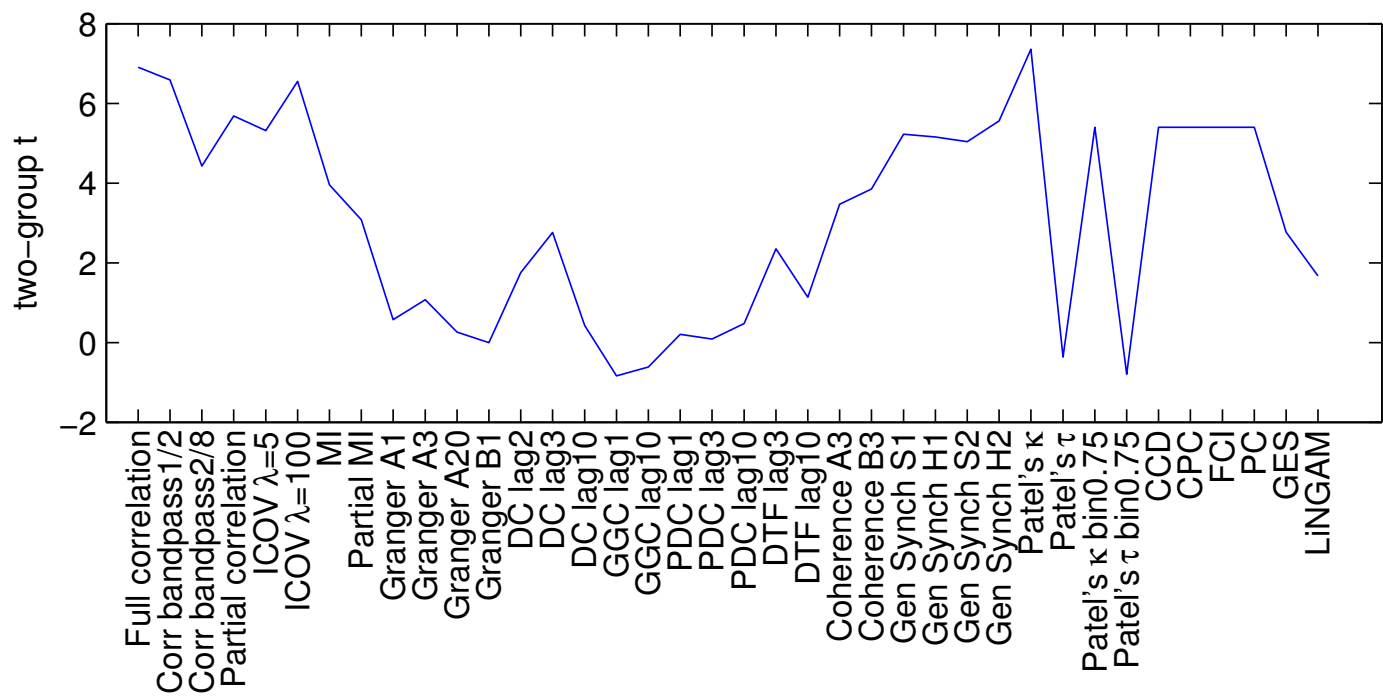
Simulation 18 (5 nodes, 10 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.0s)



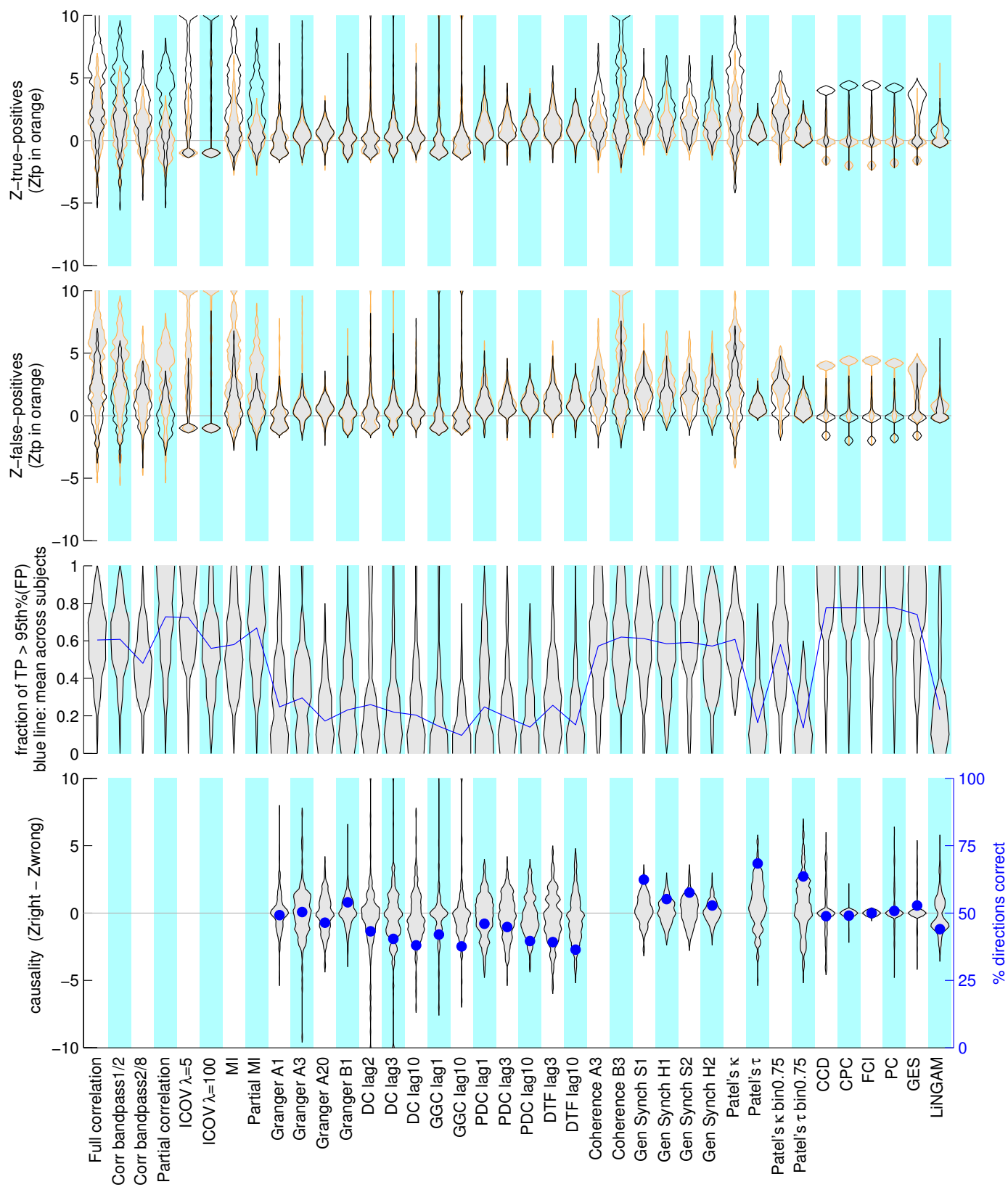
Simulation 19 (5 nodes, 10 minute sessions, TR=0.25s, noise=0.1%, HRFstd=0.5s, neural lag=100ms)



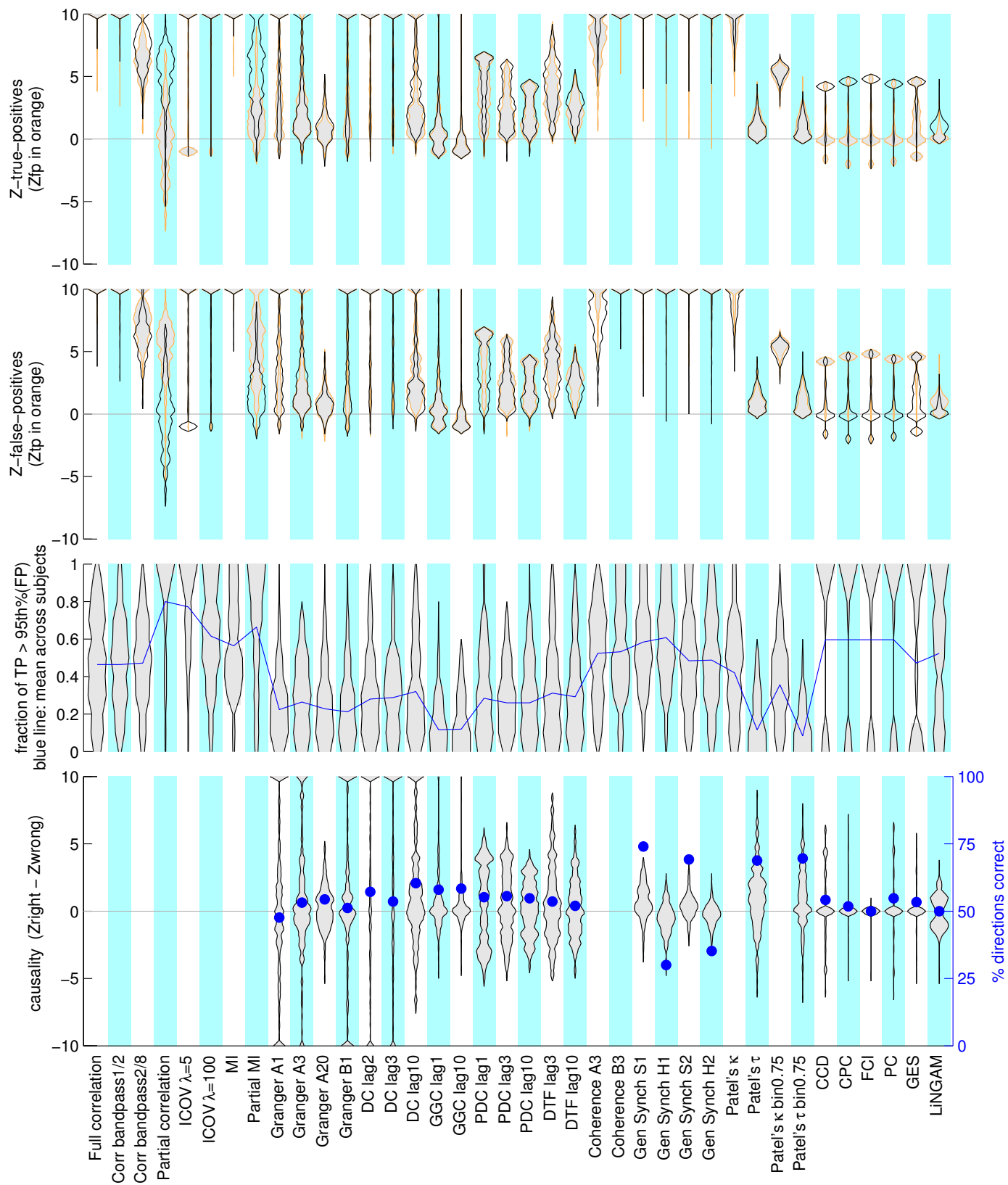
Simulation 20 (5 nodes, 10 minute sessions, TR=0.25s, noise=0.1%, HRFstd=0.0s, neural lag=100ms)



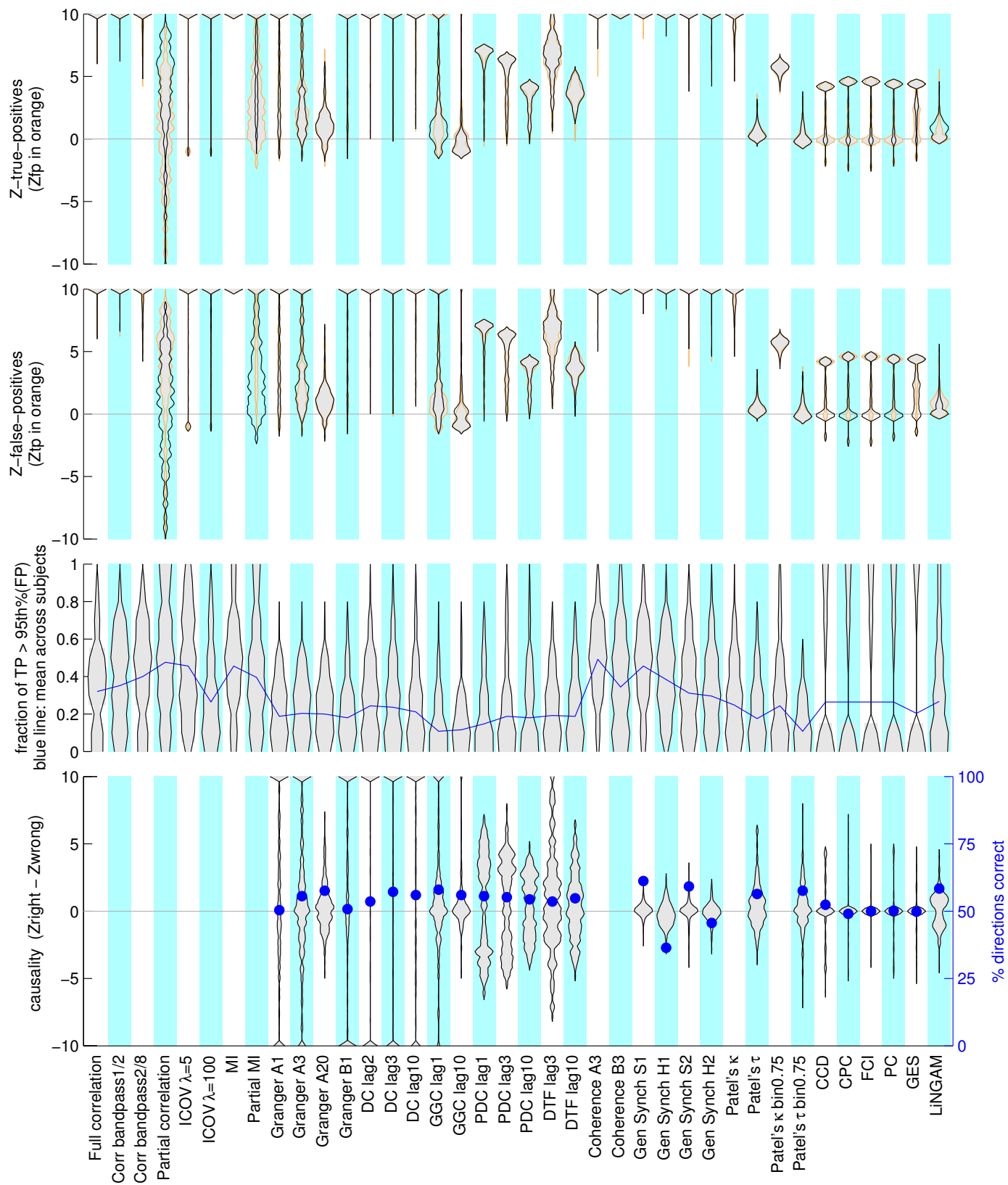
Simulation 21: two-group t-test on estimated connection strengths



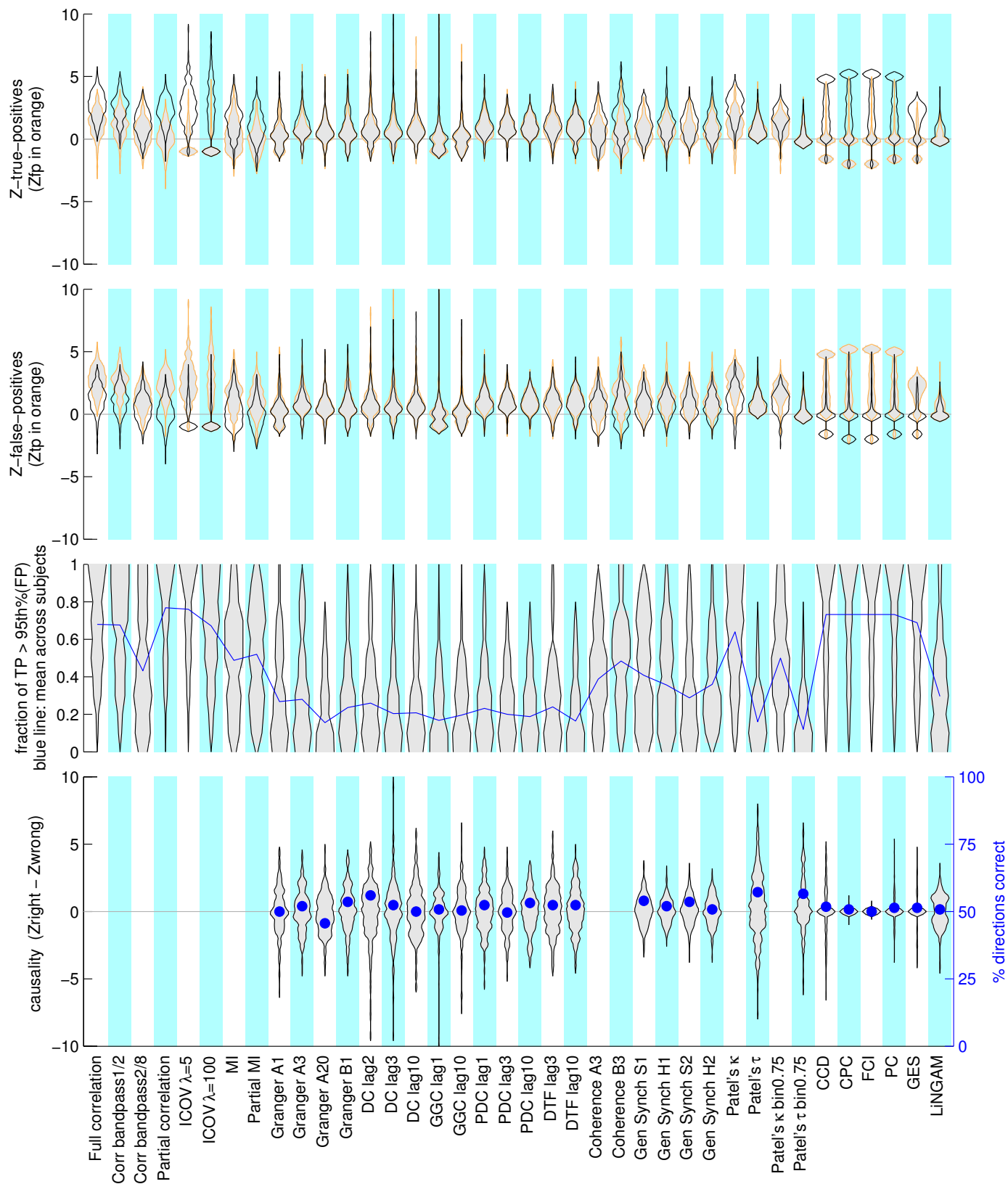
Simulation 22 (5 nodes, 10 minute sessions, TR=3.00s, noise=0.1%, HRFstd=0.5s, nonstationary connection strengths)



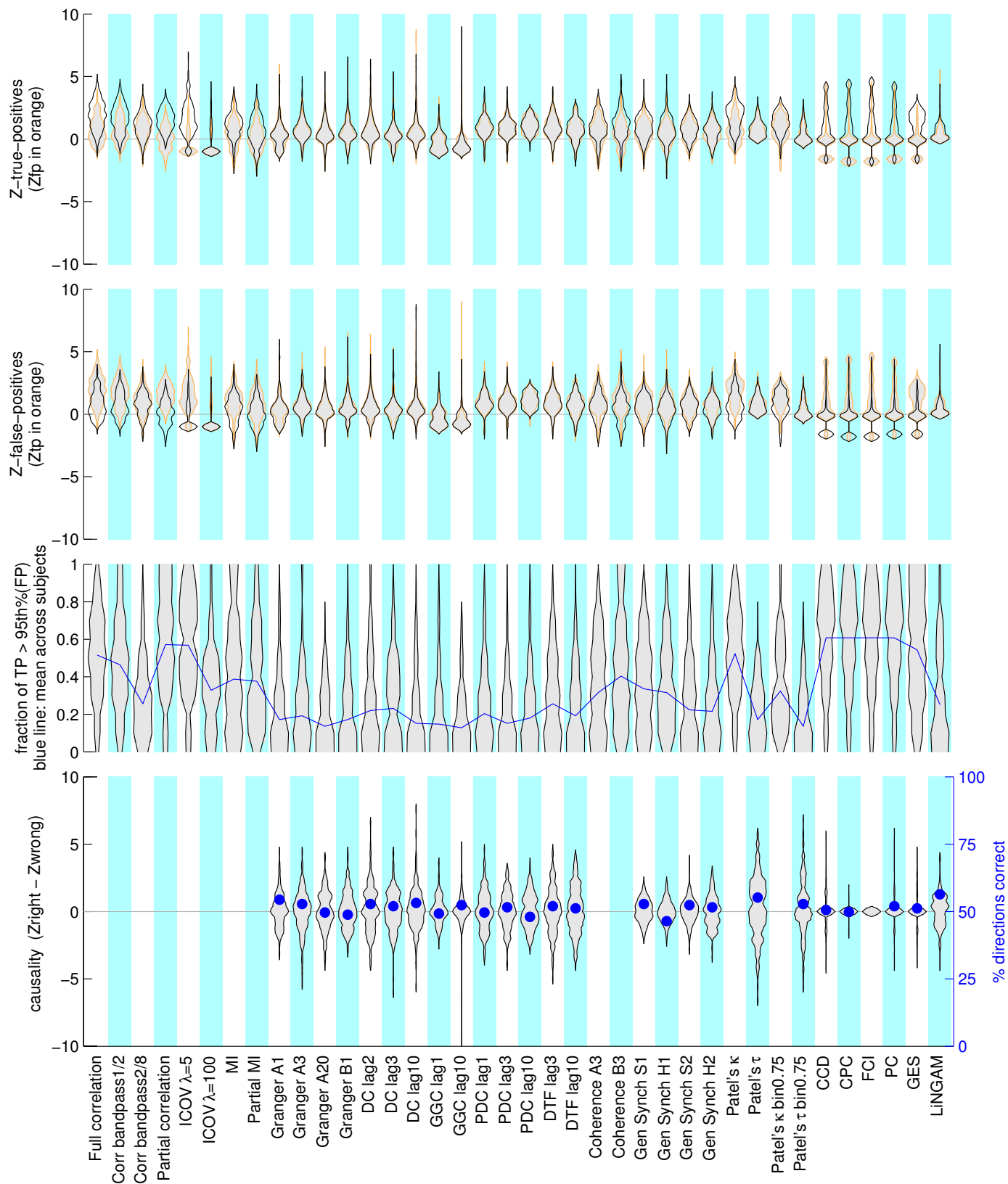
Simulation 23 (5 nodes, 10 minute sessions, TR=3.00s, noise=0.1%, HRFstd=0.5s, stationary connection strengths)



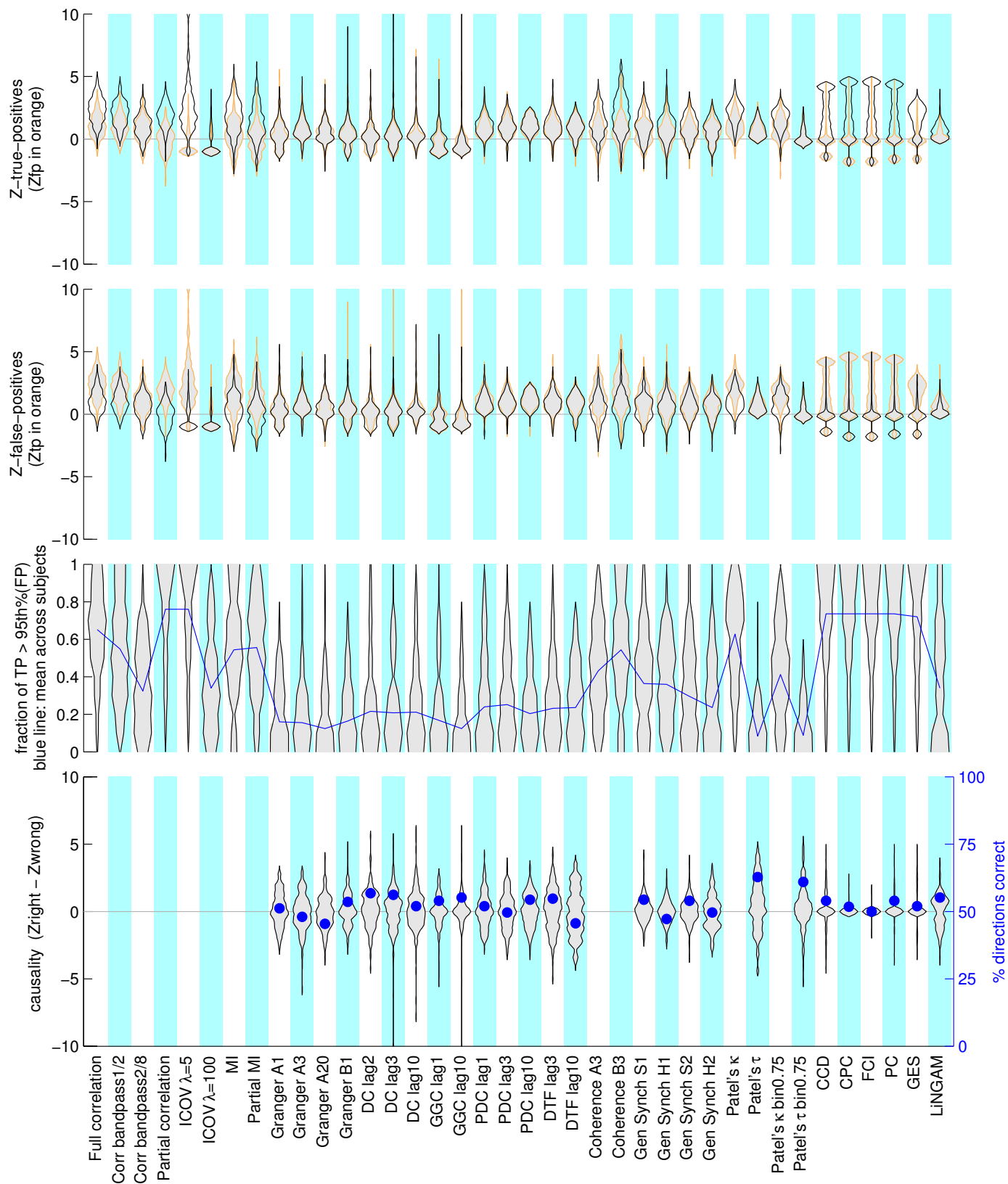
Simulation 24 (5 nodes, 10 minute sessions, TR=3.00s, noise=0.1%, HRFstd=0.5s, only one strong external input)



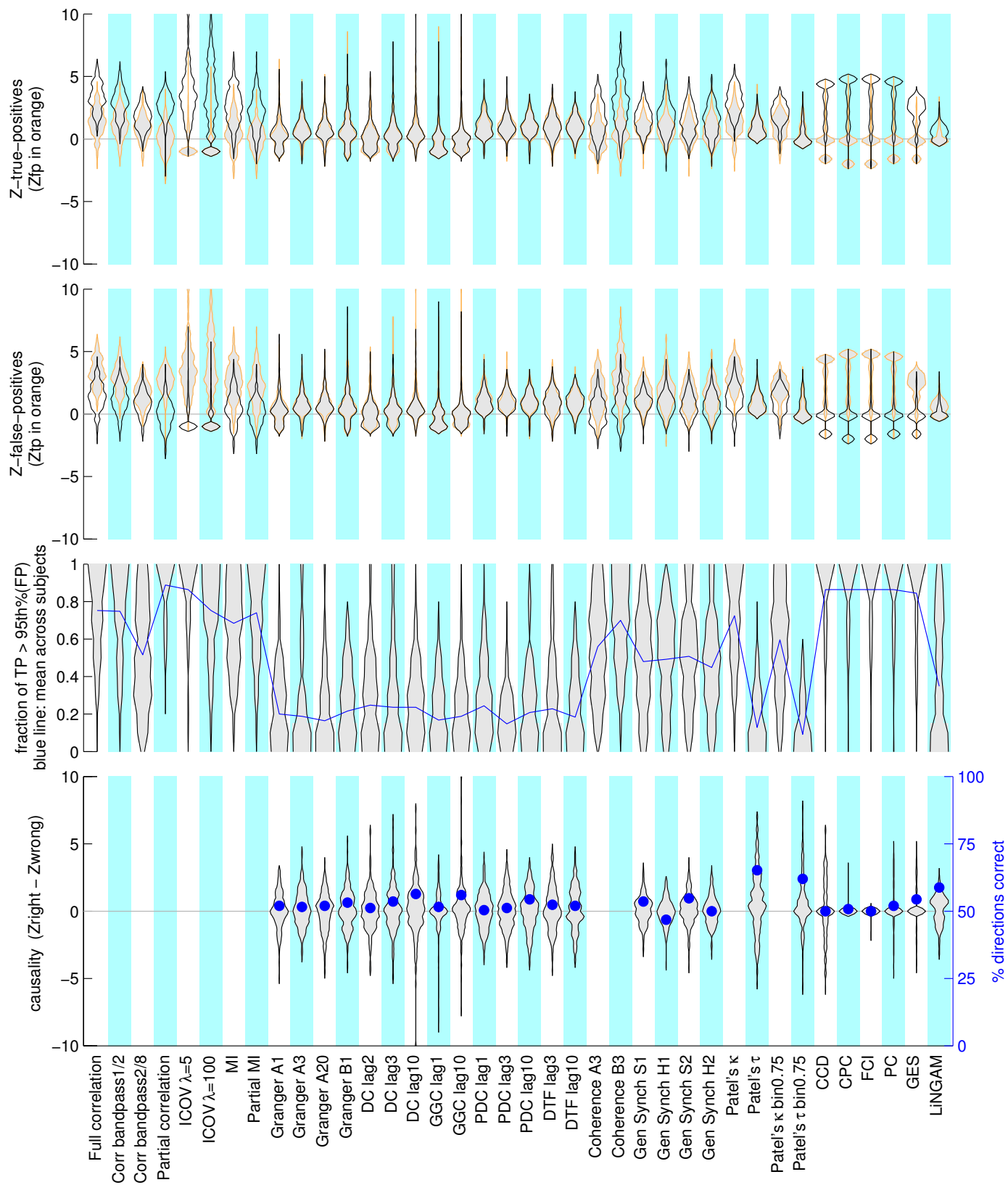
Simulation 25 (5 nodes, 5 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s)



Simulation 26 (5 nodes, 2.5 minute sessions, TR=3.00s, noise=1.0%, HRFstd=0.5s)



Simulation 27 (5 nodes, 2.5 minute sessions, TR=3.00s, noise=0.1%, HRFstd=0.5s)



Simulation 28 (5 nodes, 5 minute sessions, TR=3.00s, noise=0.1%, HRFstd=0.5s)