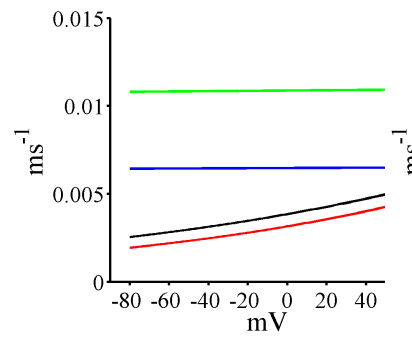
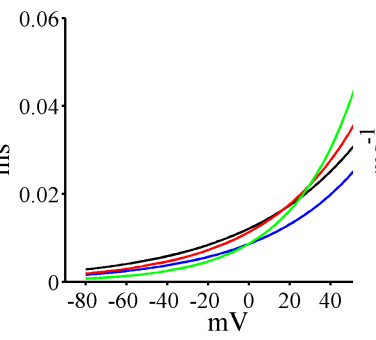


Figure 1: I_{Ks} Markov model fitting to experimental data. The model is from Silva Rudy (2005). Black lines show experimental data. Red lines show fitted I_{Ks} traces. Top row shows Control data and fitted models. Second row shows Acute DHA and fitted model. Third row shows Acute EPA data and fitted model. Bottom row shows Chronic EPA data and fitted model. Column A shows I-V traces. Control (n=9), Acute DHA (n=4), Acute EPA (n=5) and Chronic EPA (n=4) mean traces were obtained. Kinetics were estimated from the control I-V traces. In Control and Acute were used the $G_{Ks} = 50$ nS. In Chronic cases the $G_{Ks} = 44$ nS. Column B show detail of tail current. Column C shows single traces obtained at 60 mV for an activation duration of 5.5 s and a deactivation period of 2 s. Control (n=23), Acute DHA (n=11) Acute EPA (n=12) and Chronic EPA (n=4) mean traces were obtained. These data from column C were used to improve our estimates of the time kinetics in each case. Column D shows single traces obtained at 60 mV for an activation duration of 12.5 s and a deactivation period of 2 s. Control (n=9), Acute DHA (n=4) and Acute EPA(n=5) mean traces were obtained. There are no data for the Chronic EPA case for 12.5 s trace.

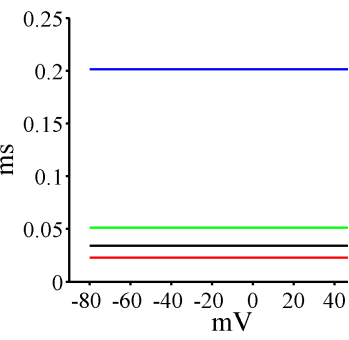
A: alpha, beta



B: gamma, delta



C: theta, eta



D: psi, omega

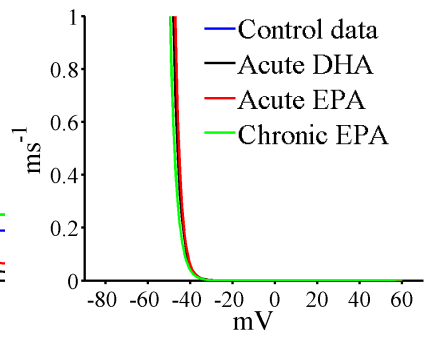
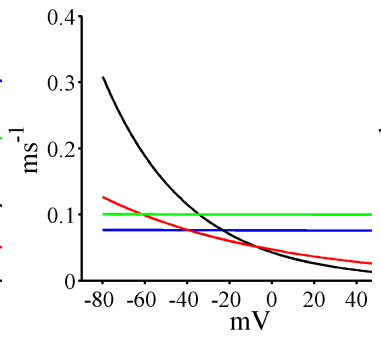
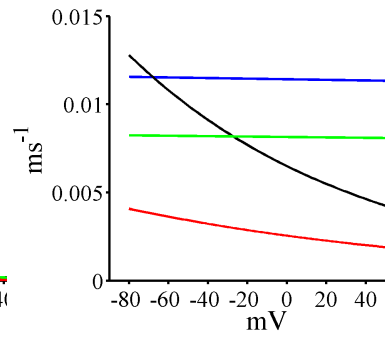
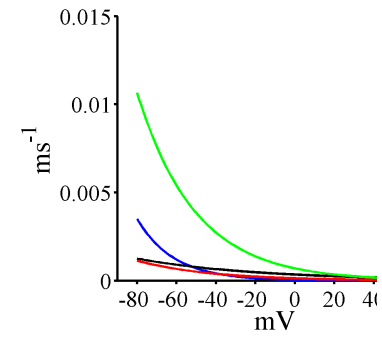
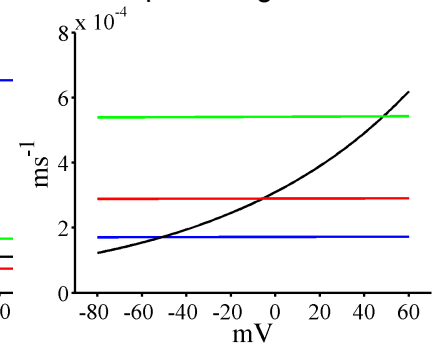


Figure 2: Transition rates of the 17 states markovian model (Silva, Rudy, Circulation 2005). The column A shows alpha (top) and beta (bottom). The column B shows gamma (top) and delta (bottom). The column C shows theta (top) and eta (bottom). The column D shows psi (top) and omega (bottom). Blue lines denote Control data transition rates. Black lines denote Acute DHA transition rates. Red lines denote Acute EPA transition rates. Green lines denote Chronic EPA transition rates. The same colour scheme is used in all panels.

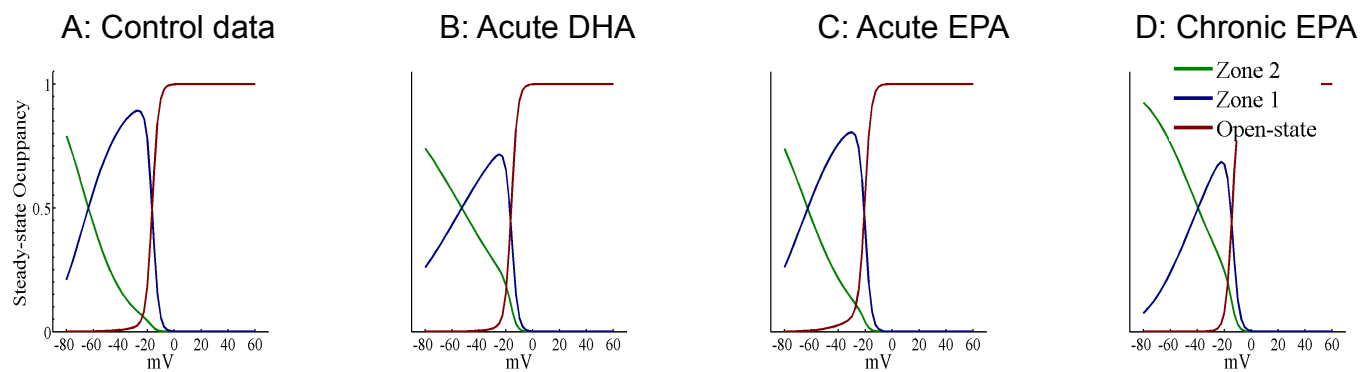


Figure 3: Steady-state distribution of model states occupancy at each case. The column A shows the Control data. The column B shows the Acute DHA. Column B shows Acute EPA The column D shows Chronic EPA. Green lines denotes Zone 2 (deep closed states). Blue lines denotes Zone 1 (near – to open states). Red lines denotes Open-state. State occupancy is the ratio between number of channels in the state and total number of channel.

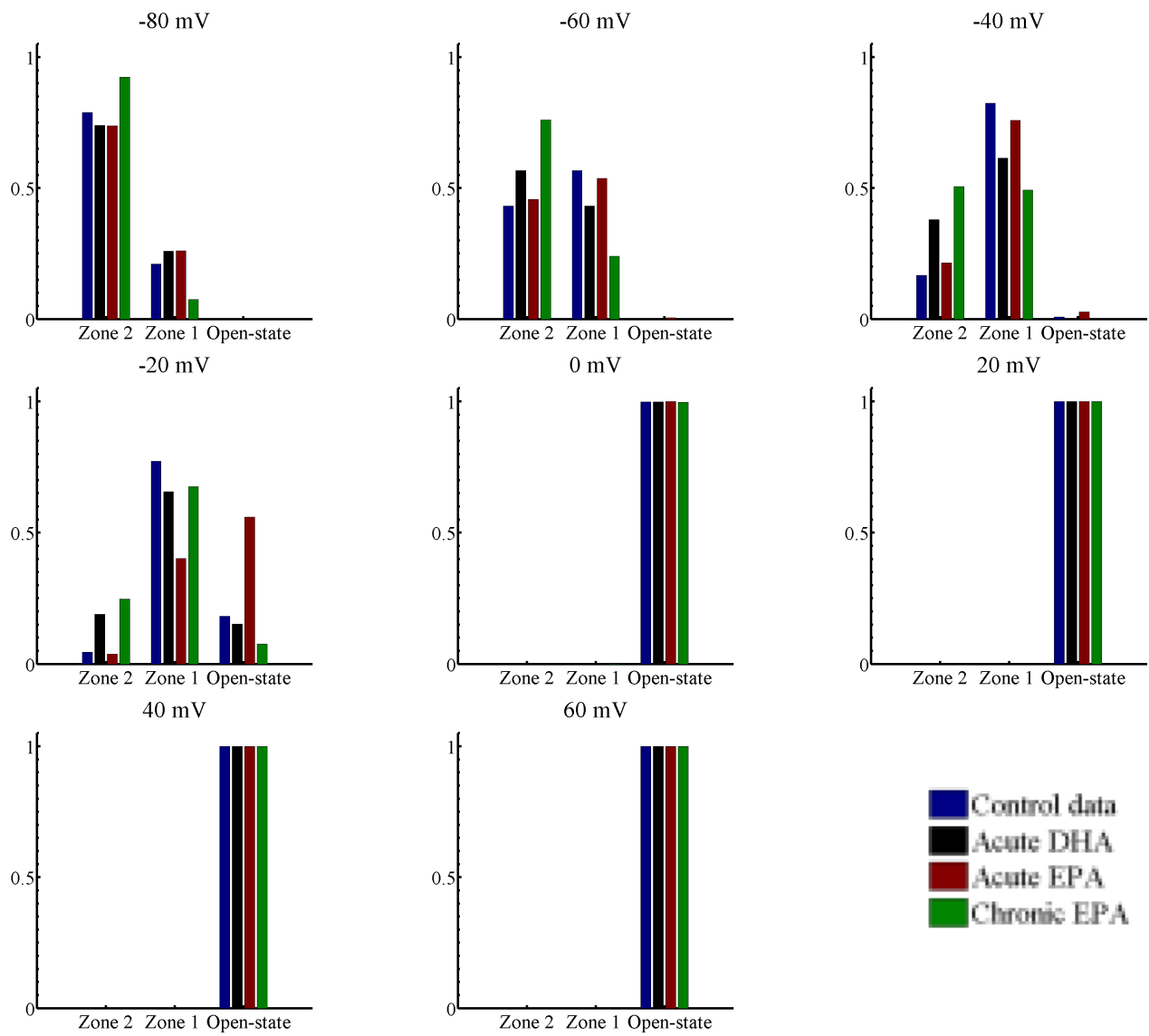


Figure 4: Steady-state distribution of model states occupancy at selected voltages. The voltage is in the title in each panel. The Zone 2 represent the deep closed states. The Zone 1 represent the states close to Open-state. State occupancy is the ratio between number of channels in the state and total number of channel. Blue bar denotes Control data, red bar denotes Acute DHA. Green bar denotes Acute EPA and magenta lines denote Chronic EPA in all panels.

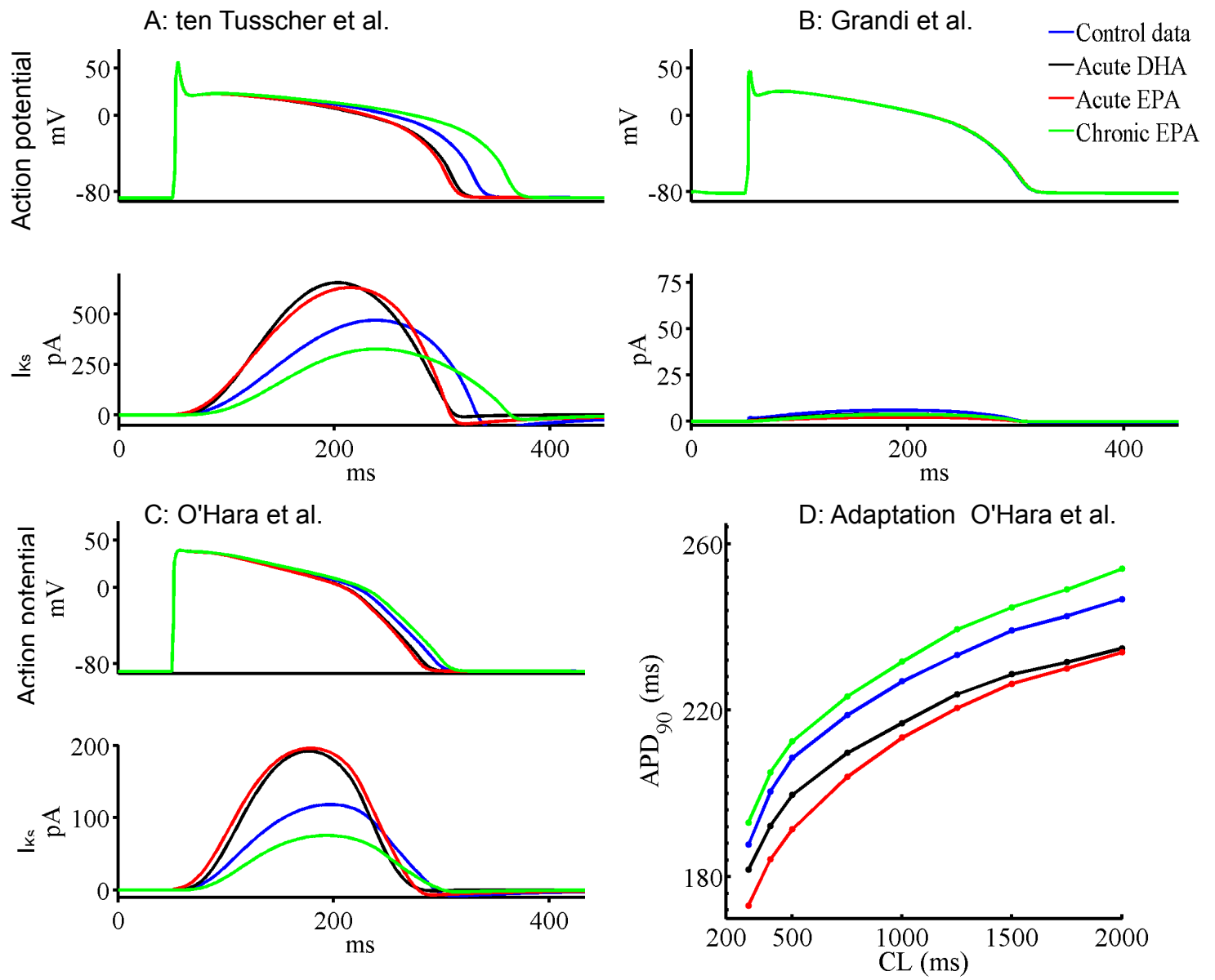


Figure 5: Action potential and I_{Ks} profiles. Panel A shows simulation data from the ten Tusscher model. Panel B shows simulation data from the Grandi model. Panel C shows simulation data from the O'Hara Rudy model. Panel D shows AP adaptation in O'Hara et. al. model. The 300th AP was measured to ensure complete model stabilization. In all panels blue lines denote Control, black line denote Acute DHA, red lines denote Acute EPA, and green lines denote Chronic EPA cases. In the top AP panels G_{Ks} using control kinetics was scaled to reproduce the basal model AP profiles. The same scaling and G_{Ks} were used to simulate Acute and Chronic APs and underline I_{Ks} traces.

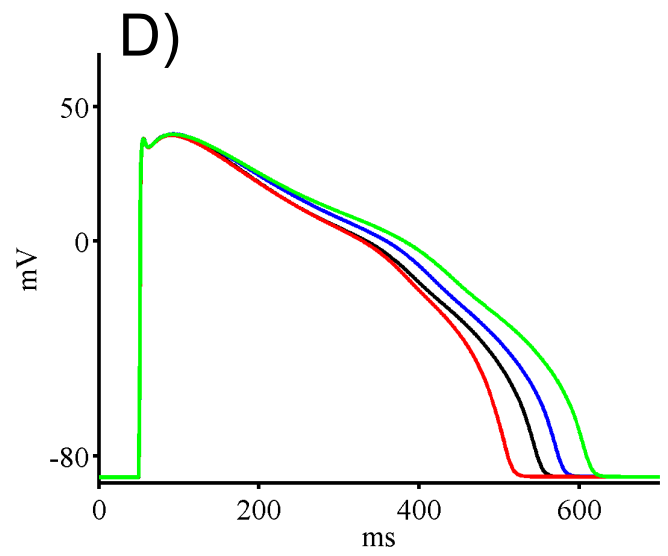
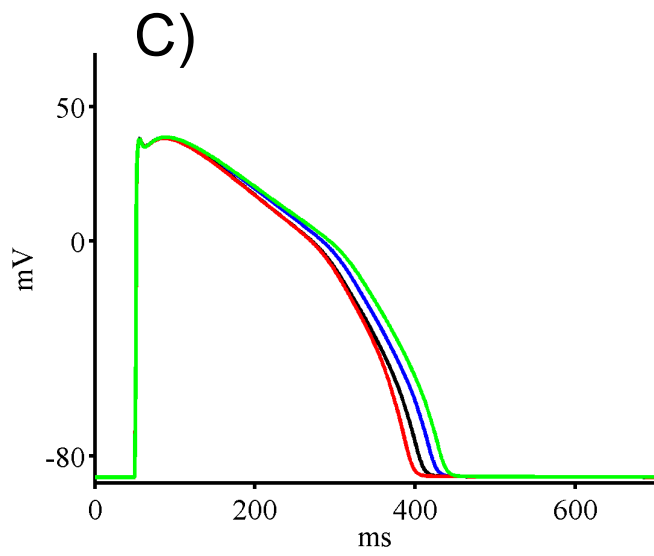
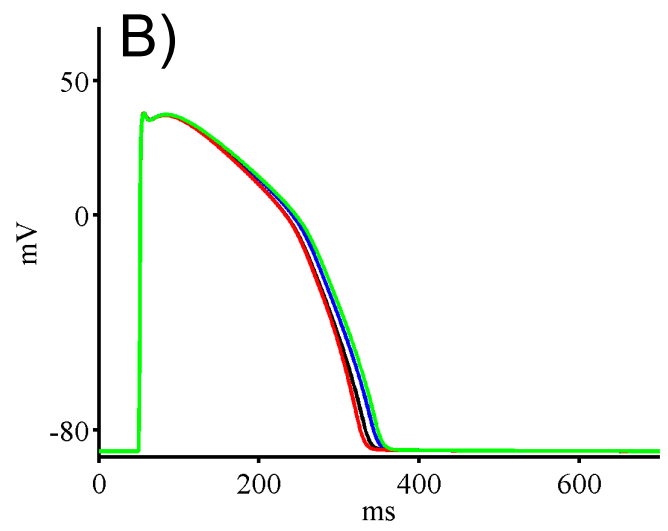
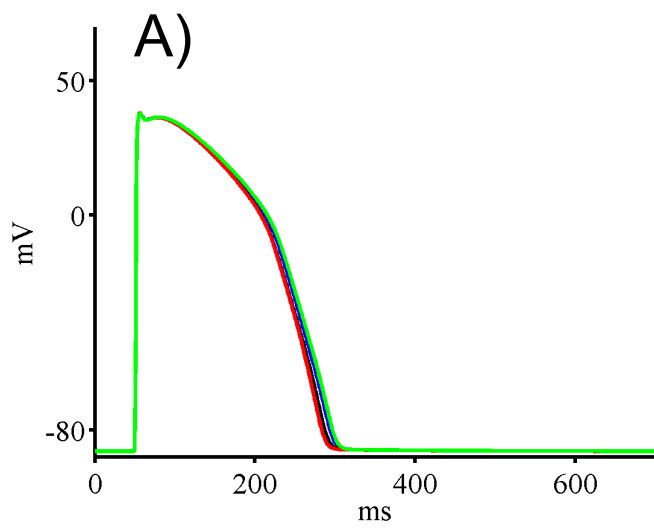


Figure 6: Simulated AP in various level of I_{Kr} block. Top row of each panel shows AP. Panel A shows the basal model. Panel B shows 25% I_{Kr} block. Panel C shows 50% I_{Kr} block. Panel D shows 75% I_{Kr} block. No AP was obtained in 100% I_{Kr} block. Blue line denotes Control data. Black line denotes Acute DHA case. Red line denotes Acute EPA case. Green line denotes Chronic EPA case.

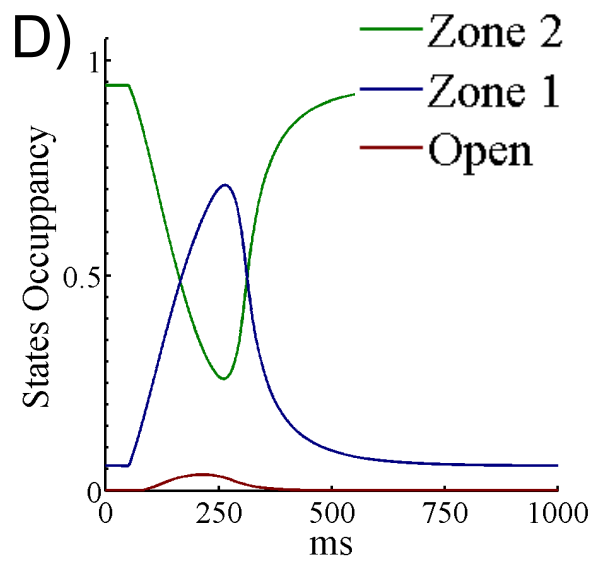
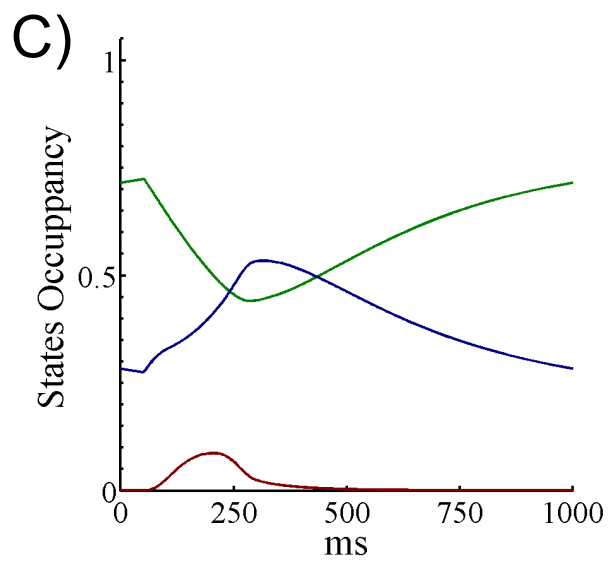
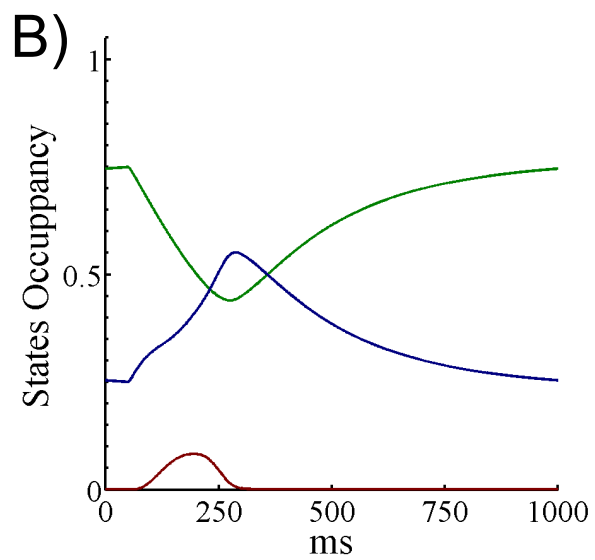
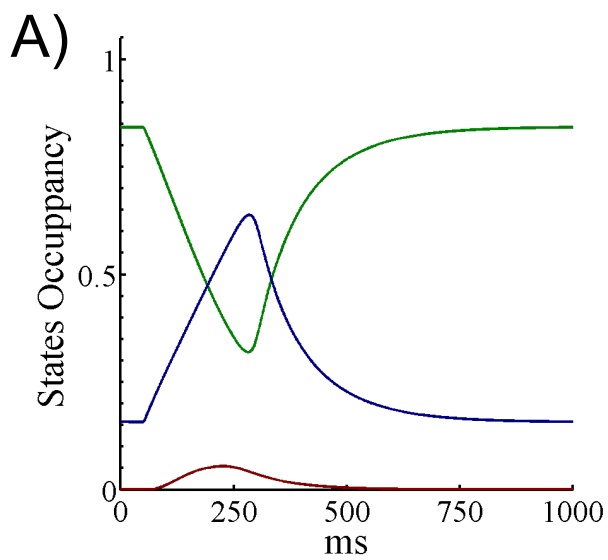


Figure 7: States occupancies under AP. The panel A) shows control case, B) Acute DHA, C) Acute EPA, D) Chronic EPA. Cycle length CL = 1000 ms. Blue line denotes Zone 1 (superficially closed) occupancy. Green line denotes Zone 2 (deaply closed) occupancy. Red line denotes open states occupancy.

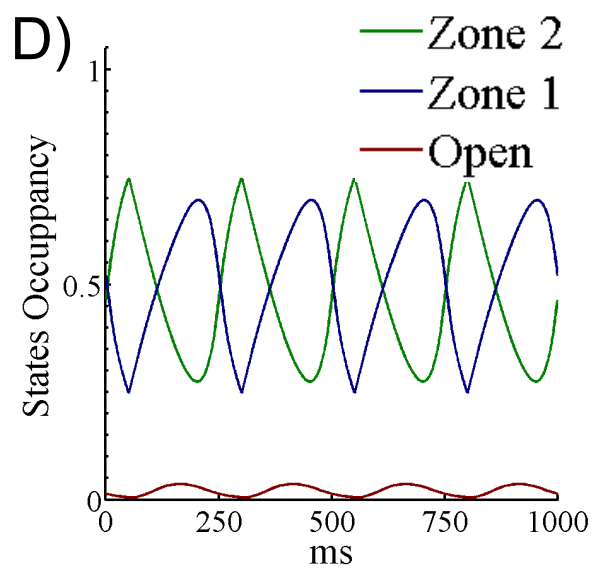
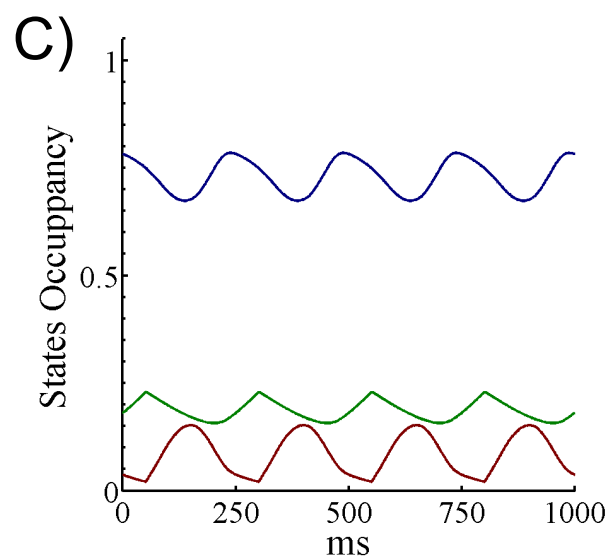
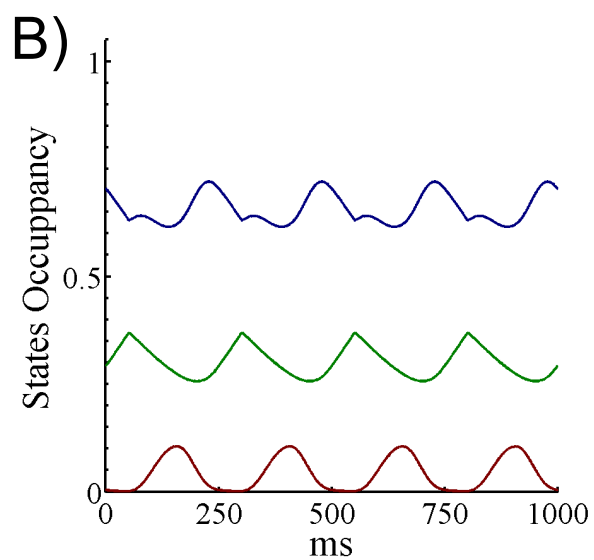
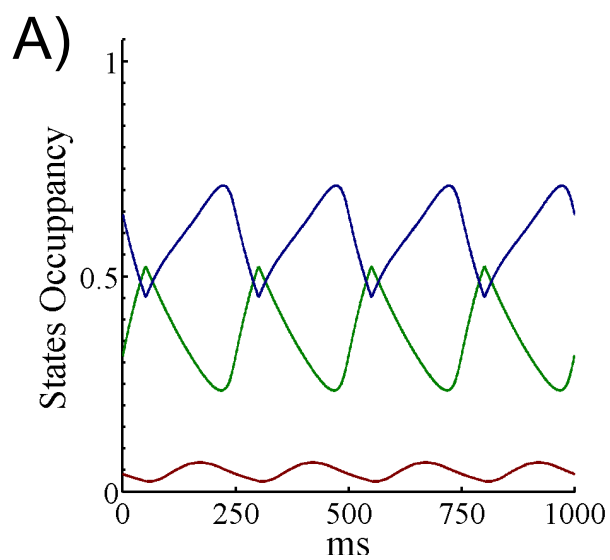


Figure 8: States occupancies under AP. The panel A) shows control case, B) Acute DHA, C) Acute EPA, D) Chronic EPA. Cycle length CL = 250 ms. Blue line denotes Zone 1 (superficially closed) occupancy. Green line denotes Zone 2 (deaply closed) occupancy. Red line denotes open states occupancy.