

The construction of the brain with its 10 15 synapses follows a tight genetic program but at the same time neurons and networks follow a developmental sequence from immature activities to adult ones. In essence all voltage gated and synapse driven currents differ in young and adult neurons and primitive network generate patterns that have little to do with the adult behaviorally relevant ones. It is manifest also that activity modulates the construction of functional units and neuronal ensembles raising the fundamental question of the relation and interactions between the genetic program and activity. It has been suggested (Ben-Ari and Spitzer, 2010) that genes and activity have a checkpoint type of relation, the latter confirming the validity of the former.



In addition, errors in the formation of neuronal entities are numerous and are associated with severe neurological sequels. This raises the highly clinically relevant issue of the fate of neuronal ensembles that have not respected their assigned duties and ended misplaced and/or misconnected. How do these aberrant networks mature and how do they generate disorders? How do misplaced and/or misconnected neurons behave and malfunction to the extent that they exert adverse effects on the operation of the cortex. It has for instance been suggested – that these neurons remain “frozen” in an immature state (Ben-Ari; 2008, Ben-Ari and Spitzer 2010) paving the way for interesting therapeutic advances. Of course many other therapeutic advances have been suggested including gene and stem cell therapy and it is convenient to debate on these issues with experts in these various domains. Here we intend to raise these issues with a firmly conceptual oriented strategy by bringing together experts that seldom meet. A particular emphasis will be made on the links between activity and genes in generating functional networks and leading to neurological disorders when mal operating.

We have selected a highly suitable meeting place close to St-Raphaël –one of the nicest spots of the French Riviera – with all the facilities required. All the participants will be lodged in the same place and there is a seminar room that can accommodate everybody. The dates, end of September, are highly suitable as they both offer the guarantee of sunny days and reduced number of tourists and attractive prices. As our other EMBO and La Ciotat meetings, we can accommodate a maximum of 180 participants (size of the auditorium including roughly 32 speakers). The time table leaves good opportunities for discussions and debates.

As in our previous meeting, we cannot pay to the speakers the travel but we cover all the local fees including transportation to and from Nice airport and/or train stations. Cost for participants includes registration, all local fees-hotel 4 nights, full board including breakfast, lunch dinners and coffee breaks, gala dinner and access to the conference room and all the hotel facilities.

Y. Ben-Ari

