

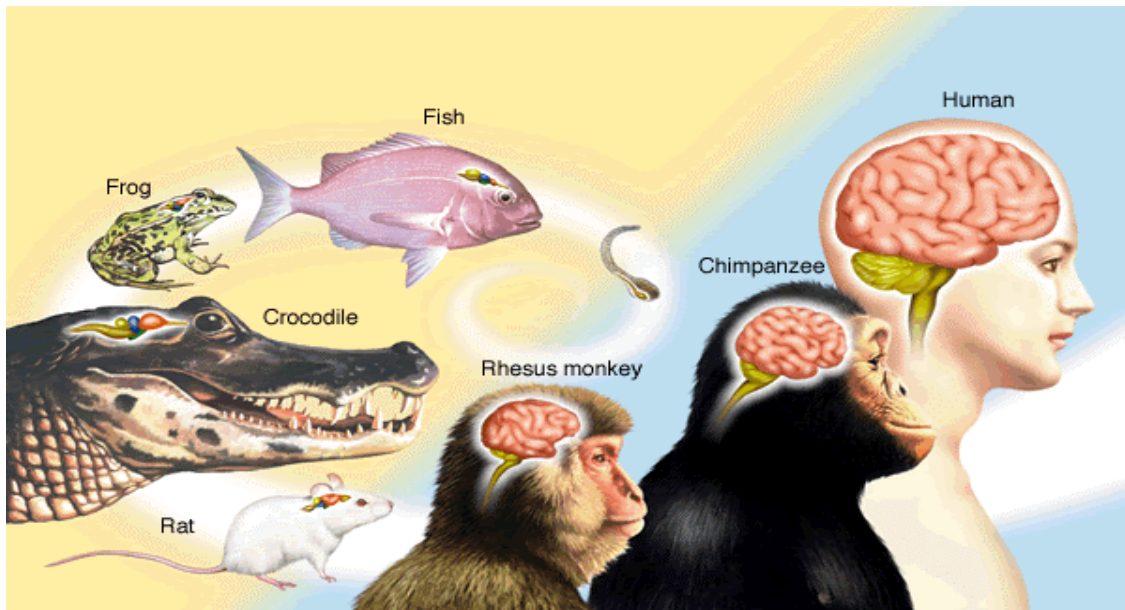
**Theme : "The New Wave of Creativity in Science & Art :
the Florentine contemporary renaissance project "**

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The Conference will be based on the "neural-evolution" for pushing scientist and artists to develop new modes of scientific and aesthetic expression of space/time .

Small sentence:

New aesthetic expression of Art and new modes of structuring Science, in the telematic systems era, improves a paradigm shift in cultural and emotional relationships of space/time.



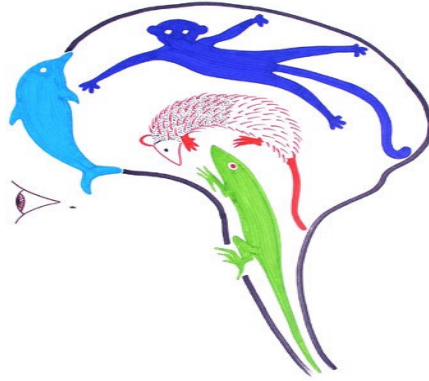
<http://www.brain.riken.go.jp/en/aware/files/evolutioncompare.gif>

-Neural-evolution phenomena.

Through the course of evolution, the brain has undergone considerable changes. Mammal brains have developed sophisticated adaptation to environment while human increased thinking capacity, becoming able to switch to active creativity improving a great impact on the natural evolution.

The evolution of man in respect to apes is essentially a consequence of the brain structural modification of neocortex that permit to express higher forms of communication; so that humanity open new opportunity of development through numerous types of scientific cognition and artistic expressivity. Today creativity is becoming the focus of the effort to understand the development of our society through of innovation of science and art, looking to advance in culture as came in the shining age of **Florentine Renaissance**. As a matter of facts the technological change of ITC communication, acts as a new impulse to the cognitive and aesthetic social functions, in a way that the human brain is becoming a working in progress to enhance new forms of creativity . This is confirmed by various studies of *functional Magnetic Resonance Imaging (f.MRI)*, that in vivo scans the brain showing how works higher oxygen levels in active fields of the two halves of the cerebral cortex. Brain technology today is able to see in real time the action of the speed of multimedia communication of people working in internet, so that researchers can understand how internet stimulate rapidly neural activation patterns and therefore this could potentially enhance brain creativity . Neurons activities critically depend on *mitochondrial function* to establish how to execute the complex processes of producing the oxygenated metabolic activity that generates bio-energy in the form of ATP, controlling in that way the neurotransmission and plasticity of the brain. In fact, the human brain is only 2% of the weight of the body, but it consumes about 20% of the oxygen transported from blood; therefore, the neurons are filled with numerous mitochondrial organelles that activate the breathing at molecular level. From those quite recent knowledge, we understand that creativity has a crucial point in finding a detailed description of the interactions in the brain among, mitochondrial functions of energy metabolism, and neuronal activity. In fact

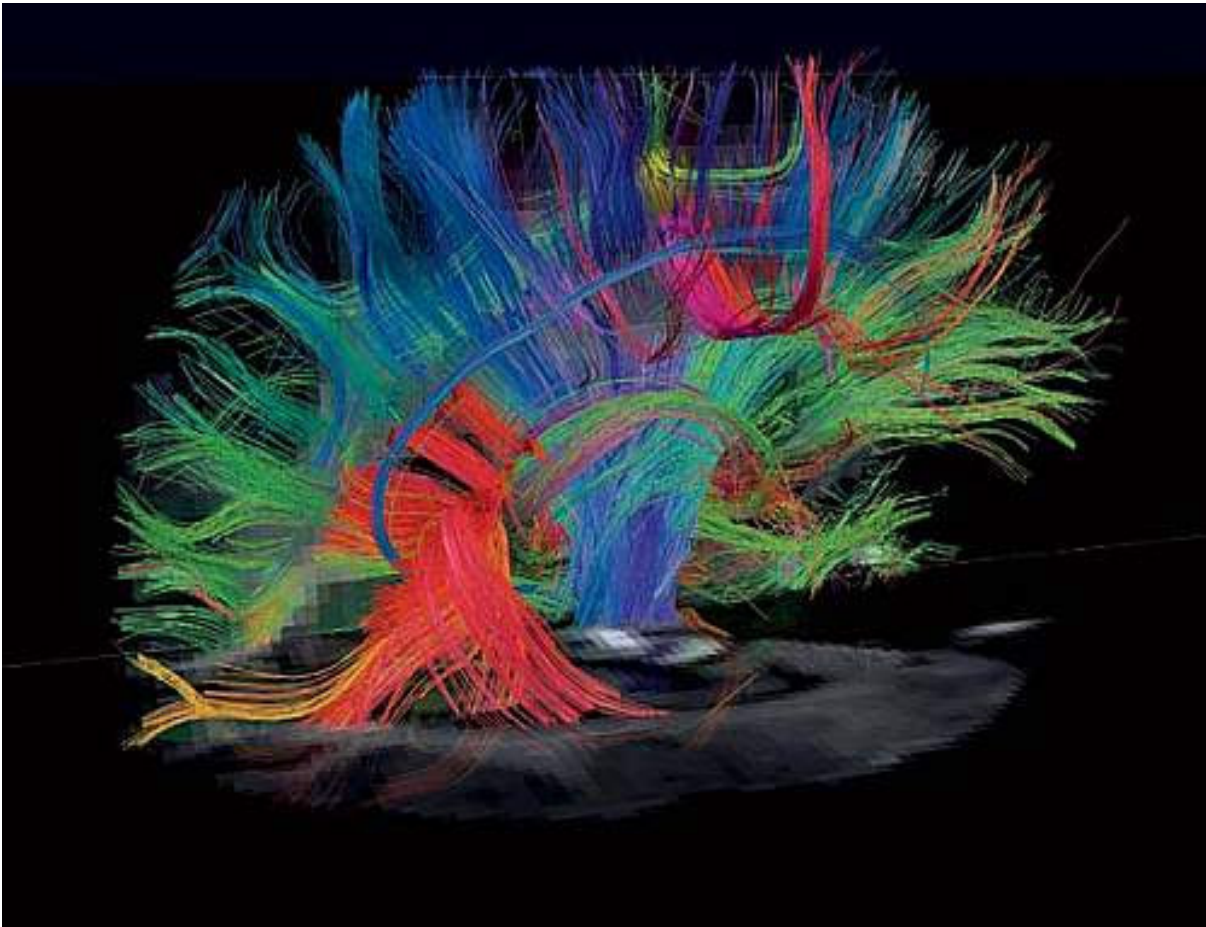
the *mitochondrion* is a bacterial like organelle, highly specialised, as an hard-driven oxidiser of metabolites in cell's metabolism; in fact without mitochondria each cell easily dead (1). Therefore studies of Mitochondrial DNA variation, focus that also a single mutation of mt.DNA, could be extremely important in evolution for understanding the basis of the selective advantage of human communication and its modulation in permitting an more conscious enhancement of the growth of the expression of human creativity in science and art. The mt-DNA in humans, contain 37 genes, and is inherited, both for man and females childs, only from the mother; so that the mt-DNA mutation rate in human, depends by the evolution of female germline cells, and this fact can be associated hypothetically with the evolution of the right hemisphere dominance in non verbal imagery funtions of intuitive and visual thinking domains through the studies of mirror neurons. (2)



<http://www.thegreatstory.org/charts/quadrune-2.jpg>

Therefore Neuroscience techniques of *f.MRI* nowadays allow us to look inside the human brain so that it become possible to speculate about the evolving brain creativity in science and art, starting from such data and some new scientific hypotheses.

Human Brain representaion through functional Magnetic Resonance Imaging (f.RMI)



<http://www.roumazeilles.net/news/fr/wordpress/wp-content/uploads/2008/11/brain.jpg>

Mitochondria and epigenesis: In eukaryotes, mitochondrial DNA activity (mtDNA) controls ATP oxygenated production, and other redox state of metabolic living functions of the cells, till the apoptosis, thereby establishing effective parameters governing the transduction of biochemical signals that regulate nuclear gene expression (nDNA) through metabolic functioning. As a matter of fact like a clock “*mt.DNA & n.DNA*” are working in synergy activating a regulative impact on a complex developmental gene regulation in relation to nutrition, working as the response of genes to metabolites and viceversa; recently this field it is studied by “*Nutrigenomics*”. (3) Knowing that the sequence variation of human genes between individuals is low compared with that in apes or other living system in nature, now became highly important the epigenetic function of the *mt.DNA* regulation, to understand the neuro-evolution phenomena of human species through connecting metabolites to nuclear chromosomes expression. Hence the future role of the emerging field of *Nutrigenomics* would explore new frontiers that link the metabolic epiphenomenon with the developmental flow of genetic information that combines gene expression to food metabolites, by using post-genomic related technologies. (4) In particular interactions between mitochondrial function, energy metabolism, and neuronal activity is crucial for the EGOCREANET ON-NS&A research, focused on the complex relationships that link the Neural-evolution phenomena to the development of intuitive thinking and visual imagery as the fundamental basis of creativity. (5)

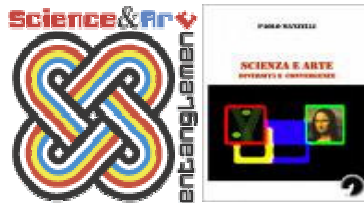
**- Contemporary Science & Art confrontation
in renewing the conceptualization and perception of Space/time relationships. -**



<http://www.sciencedaily.com/images/2008/08/080804222910-large.jpg>

Neural-evolution phenomena are leading the thinking brain development, so that Science and Art creativity today need to be considered as the subjective imaginal reality, embodied in the objective biological structure of the brain. Conceptual indicators emerging from the neural-evolution, essential concerns developmental role of growing a conscious description both in science and art, about the changes on the relationships between space and time. (6), (7) In fact the modern intellect move from an objective classical representation of space and time as splitted entities, versus the relative representation of space-time, and in more in recent years is affirmed the need to embody in all research of neural-evolution, also the observation mental states coming from *f.MRI* brain technology, in this way the science and art developmental integration, consciously recompose the reductive splitting between the object and subject, going today forward an holistic representation of art & science entanglement. (8)

Open Network for New Science & Art



VIRTUAL INTERNATIONAL ENTERPRISE

In conclusion the development of alternative ways to perceive and to conceive “space-time” is a result that put a bridge from the brain evolution to the contemporary progress of digital creative research, oriented towards the exploration of virtual architectures representing a shared coherence among Science, Art and Society, that can be seen as a more complete synthesis of the configuration of the reality of contemporary living world in the modern context of development of Knowledge Based Bio-Economy.



<http://irisgreen.it/files/2009/04/fiori-olandesi-arcobaleno.jpg>

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