Author's response to reviews

Title: Genome instability model of metastatic neuroblastoma tumorigenesis

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To Editor

BMC Medical Genomics

Dear Editor,

Please, enclose you find the manuscript entitled "Genome instability model of metastatic neuroblastoma tumorigenesis" by Salvatore Masecchia, Simona Coco, Annalisa Barla, Alessandro Verri and myself to submit to BMC Medical Genomics as research article.

The manuscript concerns the application of the Enhanced Fused Lasso Latent Feature Model to manage array Comparative Genomic Hybridization data of neuroblastoma and Functional Dictionary Learning algorithm to analysis the tumorigenesis of neuroblastoma tumor. It is one of the first mathematical approaches to study the genesis of neuroblastoma and we think that our approach can be useful to better understand the genesis of this tumor.

Neuroblastoma (NB) is a relatively rare pediatric cancer, but it has a great medical and social impact in the children of pre-scholar age and unfortunately more than 60% of cases with disseminated disease have unfavorable outcome. Metastatic NB tumor shows several numerical and structural chromosome aberrations but the origin of such complex chromosomal aberrations is still unclear, and currently there are no accurate models of NB tumorigenesis. We elucidated the NB tumorigenesis by high-resolution array comparative chromosome hybridization of 190 metastatic NBs using dictionary learning analysis. In dictionary learning, the original signal is approximated by a linear weighted combination of atoms: the elements of the learned dictionary. We named this as Genome Instability Progressive model of NB tumorigenesis.

Since today a huge amount of genomic data are available for several cancers, we believe that our mathematical approach can be extended to other pediatric and adult cancers to better understand the genesis of cancer.

As this model as proposed for the first time it should be very useful for us to have critical review of the manuscript and I greatly appreciate if you submit the manuscript to the reviewers.

Thank you for attention.

Yours Sincerely

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