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Guest Editorial

CRISPR-Cas Gene-Editing for Precision-Medicine Based "Neuro-Oncogenomics" in Immunotherapeutic Targeting of Wnt/Frizzled-Toll Like Receptors-Autophagy: Cost-Effective Management of Schizophrenia, Obsessive Compulsive Disorder, Alzheimer's Disease and Glioblastoma in Genetically Disparate Susceptible Population-Pools in in the Covid-19 Vaccination Era

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Demystifying the "neuro-immune intersections" in the complex etiopathogenesis of neurological ailments primarily schizophrenia, obsessive compulsive disorder, Alzheimer's disease and glioblastoma in ethnically disparate susceptible cohorts by immunotherapeutic targeting of Wnt/Frizzled-toll like receptors-autophagy biochemical/metabolic signaling cascades offers fascinating avenues in predictive biomarker development in the Covid-vaccination era [1-4]. CRISPR-Cas genetic engineering technology has emerged as an enigmatic modulator of complex human genetic diseases; precision-medicine based genome editing and detecting specific DNA/RNA sequences to gene expression control warrants future dynamic collaborations for in immuno-inflammatory disease(s)-management in the global Covid-19/Omicron pandemic and Covid-19 vaccination era. At The ability of CRISPR-Cas complexes to be meticulously programmed for targeting particular DNA loci, even when using catalytically inactive dCas-proteins is indeed intriguing; the sophisticated repertoire of naturally derived and bio-engineered dCas-proteins including fusion proteins is a promising toolbox for construction of functional synthetic genetic circuits for critical quantitative understanding of the basic principles governing gene expression regulation and functioning of living organisms [5,6]. In my expert opinion, the disproportionate share of psychosocial distress and neuro-behavioral deficits warrants a robust, evidence-based, pragmatic "public health-bioengineering CRISPR-Cas immunotherapeutic model" for design of pharmacological scaffolds, novel drugs and clinically validated predictive biomarkers for timely management of schizophrenia, obsessive compulsive disorder, Alzheimer's disease and glioblastoma amongst genetically susceptible at-risk cohorts of asymptomatic vs borderline vs symptomatic heterogeneous subsets of ethnically disparate population-pools of distinct life-styles and socio-economic strata.

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Further, symptomatic cohorts with clinical hallmarks and manifestations of neuro-psychosocial disorders including the complex labyrinth of aberrant biochemical/metabolic flux at the intricate neuro-immune intersections with tapered dosages of atypical anti-psychotics/mood-stabilising drugs should be aptly referred for precision-based neuro-immunodiagnostic assays and functional-magnetic resonance imaging coupled with patient-friendly one-to-one counseling sessions for ensuring eventual higher patient-satisfaction rates during the course of treatment; moreover, emerging data-sets in inflammatory diseases elegantly emphasise the immunotherapeutic potential of glycogen-synthase-kinase-3-beta (GSK-3β) in the Wnt-Fzd pathway and toll-like receptors (1-13) along with beclin-LC3II (isoforms) of autophagy metabolic signaling cascade for multicentric epidemiology-based genetic association prospective case-control studies with matched age- and ethnicity-cohorts of schizophrenia, OCD, AD and glioblastoma. Interestingly, targeted bulk protein degradation aggregates and cargo of the "neuro-immuno-inflammatory triggers" of neurodegenerative disorders warrant future dynamic collaborations amongst established scientists and clinicians with proven excellence and demonstrated expertise in dissecting the underlying cellular, molecular and genetic basis of neurological diseases coupled with electrophysiological assessments of calcium-activated chloride/potassium channels in aberrant inflamed neuronal physiological milieu of symptomatic cohorts in the Covid-vaccination era. During my recent meaningful collaborations with senior neurosurgeons of Virginia, USA and Lucknow/New Delhi, India, I gained critical insights in the enigmatic and sophisticated gamma-knife neuro-radio-surgery for precision-based neur-radiodiagnostic assessment of the hypoxic, vascular insufficient and inflammatory tumor microenvironment/heterogeneous tissue core in the malignant brain tumor tissue of glioblastoma patients of American and Asian-Indian genetic profiles/ethnicities for timeline-driven outcomes-based high-quality treatment. Overall, the future holds tremendous promise for designing a well-defined pragmatic and ethical "TLR-Autophagy-Wnt/CRISPR-Cas Neuro-Immune Genetic Blue-Print" patient-friendly roadmap for diminishing the overwhelming public health challenge of schizophrenia, OCD and glioblastoma amongst population-pools of genetically mixed ethnicities worldwide.

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