

From pieces to picture

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1. Systems biology, when fully integrated with computational and multi-omics approaches, represents not just a methodology but a paradigm shift in understanding and intervening in complex phenotypes, moving from reactive symptom management to proactive precision medicine.
2. The identification of transcriptomic markers, such as the upregulation of FOSB and NPR3, offers a promising basis for blood-based diagnostics for PTSD. – This thesis (Chapter 2)
3. Chronic cortisol exposure alters cortical neuron transcripts, revealing a mechanism linking stress to neuronal plasticity. – This thesis (Chapter 4)
4. Machine learning models demonstrate high accuracy in predicting complex disorders by integrating multivariate data, ranging from clinical indicators to molecular data. – This thesis (Chapter 5 and 6)
5. Co-localization analysis links schizophrenia risk variants, like TMTC1 and FSTL1, to PTSD, highlighting shared genetic pathways. – This thesis (Chapter 2 and 4)
6. Multi-omics and machine learning demand a framework balancing interpretability, complexity, and clinical relevance, challenging paradigms favoring precision or transparency.
7. The interplay of genetics, epigenetics, and environment suggests reconceptualizing stress disorders like PTSD and neurodegenerative diseases as dynamic phenotypes.
8. Machine learning and systems biology must prioritize diverse populations beyond Western cohorts to address complex disorders globally. – Impact
9. *“The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man.”* – George Bernard Shaw
10. *“Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world.”* – Albert Einstein