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Biophysical and crystallographic studies of transmembrane transport, oxidative DNA repair, and novel physiological regulatory systems.

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Function of the cortical microcircuit

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Characterization of the adolescent brain

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Role of the actin cytoskeleton

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DNA recombination and repair

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Short RNAs regulation of chromatin and gene expression in *C. elegans*

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Genetic programs that control neural development in *C. elegans*

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Control of pattern formation by homeotic genes and their downstream targets in *Drosophila*

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Genetics of mouse kidney development

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Cell cycle control and growth during development

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The circadian clock's regulation of immune function in *Drosophila*

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Intestinal stem cells in *Drosophila*

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The role of T-box genes in mammalian embryogenesis and organogenesis

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Drosophila developmental genetics

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ApoB secretion and hepatic lipid metabolism

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Molecular mechanisms of neuronal death

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Correlations of fMRI changes in the hippocampal and human disease

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Olfaction

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Molecular genetics of head and neck squamous cell carcinoma and pancreatic ductal adenocarcinoma

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Serotonin and a predisposition for suicide

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Drug action and synaptic function in rat mesolimbic dopamine neurons; relevancy to addiction and schizophrenia