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What have we learned recently from transgenic mouse models about neurodegeneration? The most promising discoveries of this millennium.

Running head:
Transgenic mouse models of neurodegeneration

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Abstract:
Neurodegenerative diseases are currently a major challenge in elderly care due to demographic changes and dramatic increases in the aging population worldwide. This review is focused on the most promising research discovering ways to attenuate neural loss or enhance neuroprotection and unraveling the basis of neurodegeneration using transgenic mouse models. With the recent introduction of the powerful and relatively simple gene-editing tool CRISPR-Cas9, we have entered a new era in genetic engineering that will certainly lead to a variety of new transgenic models in the near future. The aim of this review is to note the most interesting avenues addressing unmet needs in neurodegenerative disease research that could provide promising targets for both the development of new models and the study of existing ones.

Key words:
neurodegeneration, neurodegenerative diseases, mice, rats, genetic models, transgenic animals

Abbreviations:
Aβ – beta-amyloid, APOE – apolipoprotein E, APP – amyloid precursor protein, AD – Alzheimer's disease, CRISPR – clustered regularly interspaced short palindromic repeats, DAT – dopamine transporter, ER – estrogen receptor, FAD – familial Alzheimer's disease, FTD – frontotemporal dementia, HD – Huntington's disease, HTT – huntingtin, KO – knockout, LB – Lewy bodies, LC – locus ceruleus, L-DOPA – L-dihydroxyphenylalanine,

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