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► **COVER:** 'Worming thoughts' by Kirsten Lee, inspired by the Review on p759.



CLAUDIA WIEDEMANN



KATHERINE WHALLEY



LEONIE WELBERG



MONICA HOYOS FLIGHT

Neurodegenerative diseases are one of the most burdening health problems in the aging world population. There is an urgent need to develop efficient therapies to combat the onset and progression of these diseases. In this issue, we publish four articles that highlight different approaches currently being undertaken to gain insight into their pathophysiology.

In a Review on page 759, Cohen and Dillin discuss the evidence that insulin and insulin-like growth factor 1 (IGF1) signalling contribute to toxic protein aggregation, mechanistically linking neurodegeneration with the aging process. They also consider the potential therapeutic value of targeting the insulin/IGF1 signalling pathway.

On page 768, Bertram and Tanzi describe how systematic meta-analysis can be used to investigate genetic risk factors for Alzheimer's disease. They discuss the biochemical pathways and potential pathological roles of some of the risk factors that have been highlighted by this analysis.

Recent studies have investigated the fate of healthy neurons implanted into the brains of patients with Parkinson's disease (PD). In a Progress article on page 741, Brundin and colleagues discuss what we can learn about the progression of PD from these findings, and possible underlying mechanisms.

Combining automated image acquisition and automated analysis, high-content analysis has emerged as a tool for multiple applications in neuroscience and also offers another approach for investigating neurodegenerative diseases, as discussed by Mike Dragunow (page 779).

Although highly effective therapeutic strategies for treating neurodegenerative diseases are not yet in sight, these four articles highlight the latest directions of research that will further our understanding of such diseases' aetiology and progression.

EDITORIAL OFFICES

LONDON NatureReviews@nature.com
The Macmillan Building, 4 Crinan Street,
London N1 9XW, UK
Tel: +44 (0)20 7843 3620;
Fax: +44 (0)20 7843 3629

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LONDON nature@nature.com
The Macmillan Building,
4 Crinan Street,
London N1 9XW, UK
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Fax: +44 (0)20 7843 4596/7
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Nature Publishing Group,
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nature@natureasia.com
Chiyoda Building 5F, 2-37-1 Ichigayatamachi,
Shinjuku-ku, Tokyo 162-0843, Japan
Tel: +81 3 3267 8751; Fax: +81 3 3267 8746
ASIA-PACIFIC PUBLISHER: Antoine E Bocquet
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