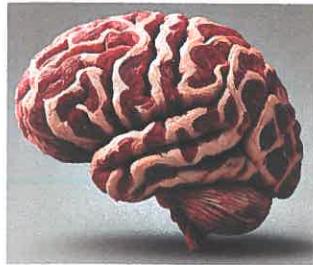


BRAIN



Cover image: Phenylketonuria (PKU) is a rare metabolic disorder that affects the body's ability to process the amino acid phenylalanine. Protein-rich foods such as meat, fish, cheese, beans, and nuts contribute to elevated phenylalanine levels, which can lead to structural changes in the brain. *Brain.* 2024; 147(11):3863–3873.

Contents

Editorial

- Plasma biomarkers in chronic single moderate/severe traumatic brain injury
D. Sharp
3641

Scientific Commentaries

- Our evolving understanding of the impact of primary HIV infection on brain health
A. Winston and M. Henderson
3643
- The role of neuronal variability in cognitive modulation via prefrontal direct current stimulation
J. Hogeveen
3645
- Motor compensation in Parkinson's disease: an empirical challenge with clinical implications
B. Ballanger and P. Boulinguez
3648

Review Articles

- Subthalamic control of impulsive actions: insights from deep brain stimulation in Parkinson's disease
D. M. Herz, M. J. Frank, H. Tan and S. Groppe
3651

- The ageing central nervous system in multiple sclerosis: the imaging perspective
M. Filippi, P. Preziosa, F. Barkhof, O. Ciccarelli, A. Cossarizza, N. De Stefano, C. Gasperini, R. Geraldès, C. Granziera, L. Haider, H. Lassmann, M. Margoni, G. Pontillo, S. Ropele, Á. Rovira, J. Sastre-Garriga, T. A. Yousry and M. A. Rocca, on behalf of the MAGNIMS Study Group
3665

Report

- De novo* and inherited monoallelic variants in TUBA4A cause ataxia and spasticity
M. Benkirane, M. Bonhomme, H. Morsy, S. L. Safgren, C. Marelli, A. Chaussonet, D. Smedley, V. Cipriani, J.-M. de Sainte-Agathe, C. Ding, L. Larrieu, L. Vestito, H. Margot, G. Lesca, F. Ramond, A. Castricoto, D. Baux, J. Verheijen, E. Sansa, P. Giunti, A. Haetty, A. Bergougnoux, M. Pointaux, O. Ardouin, C. Van Goethem, M.-C. Vincent, M. Hadjivassiliou, M. Cossée, T. Rouaud, O. Bartsch, W. D. Freeman, K. J. Wierenga, E. W. Klee, Genomic England Research Consortium, J. Vandrovčová, H. Houlden, A. Debant and M. Koenig
3681



Original Articles

Plasma biomarkers in chronic single moderate-severe traumatic brain injury

G. Spitz, A. J. Hicks, S. J. McDonald, V. Dore, N. Krishnadas, T. J. O'Brien, W. T O'Brien, L. Vivash, M. Law, J. L. Ponsford, C. Rowe and S. R. Shultz

3690

Delineating three distinct spatiotemporal patterns of brain atrophy in Parkinson's disease

Y. Sakato, A. Shima, Y. Terada, K. Takeda, H. Sakamaki-Tsukita, A. Nishida, K. Yoshimura, I. Wada, K. Furukawa, D. Kambe, H. Togo, Y. Mukai, M. Sawamura, E. Nakanishi, H. Yamakado, Y. Fushimi, T. Okada, Y. Takahashi, Y. Nakamoto, R. Takahashi, T. Hanakawa and N. Sawamoto

3702

Neurophysiological markers of motor compensatory mechanisms in early Parkinson's disease

M. Passaretti, R. Cilia, S. Rinaldo, D. Rossi Sebastian, E. Orunesu, G. Devigili, A. Braccia, G. Paparella, M. De Riggi, T. van Eimeren, A. P. Strafella, P. Lanteri, A. Berardelli, M. Bologna and R. Eleopra

3714

Distinct ultrastructural phenotypes of glial and neuronal alpha-synuclein inclusions in multiple system atrophy

C. Böing, M. Di Fabrizio, D. Burger, J. G. J. M. Bol, E. Huisman, A. J. M. Rozemuller, W. D. J. van de Berg, H. Stahlberg and A. J. Lewis

3727

Serum and CSF biomarkers in asymptomatic patients during primary HIV infection: a randomized study

A. Calcagno, J. Cusato, P. Cinque, G. Marchetti, D. Bernasconi, M. Trunfio, E. Bruzzesi, S. Rusconi, A. Gabrieli, A. Muscatello, A. Antinori, D. Ripamonti, R. Gulminetti, M. Antonucci and S. Nozza for the INACTION Study Group

3742

Direct current stimulation modulates prefrontal cell activity and behaviour without inducing seizure-like firing

D. J. Fehring, S. Yokoo, H. Abe, M. J. Buckley, K. Miyamoto, S. Jaberzadeh, T. Yamamori, K. Tanaka, M. G. P. Rosa and F. A. Mansouri

3751

Hippocampal excitation-inhibition balance underlies the 5-HT_{2C} receptor in modulating depressive behaviours

H.-J. Shi, Y.-R. Xue, H. Shao, C. Wei, T. Liu, J. He, Y.-H. Yang, H.-M. Wang, N. Li, S.-Q. Ren, L. Chang, Z. Wang and L.-J. Zhu

3764

Psilocybin reduces alcohol self-administration via selective left nucleus accumbens activation in rats

J. Jeanblanc, R. Bordy, G. Fouquet, V. Jeanblanc and M. Naassila

3780

Single-value brain activity scores reflect both severity and risk across the Alzheimer's continuum

J. Soch, A. Richter, J. M. Kizilirmak, H. Schütze, G. Ziegler, S. Altenstein, F. Brosseron, P. Dechant, K. Fließbach, S. D. Freiesleben, W. Glanz, D. Gref, M. T. Heneka, S. Hetzer, E. I. Incesoy, I. Kilimann, O. Kimmich, L. Kleineidam, E. Kuhn, C. Laske, A. Lohse, F. Lüsebrink, M. H. Munk, O. Peters, L. Preis, J. Priller, A. Ramirez, S. Roeske, A. Rostamzadeh, N. Roy-Kluth, K. Scheffler, M. Schmid, A. Schneider, A. Spottke, E. J. Spruth, S. Teipel, J. Wiltfang, F. Jessen, M. Wagner, E. Düzel and B. H. Schott

3789

Meso-cortical pathway damage in cognition, apathy and gait in cerebral small vessel disease

H. Li, M. A. Jacob, M. Cai, R. P. C. Kessels, D. G. Norris, M. Duering, F.-E. de Leeuw and A. M. Tuladhar

3804

Low-intensity ultrasound ameliorates brain organoid integration and rescues microcephaly deficits

X.-H. Li, D. Guo, L.-Q. Chen, Z.-H. Chang, J.-X. Shi, N. Hu, C. Chen, X.-W. Zhang, S.-Q. Bao, M.-M. Chen and D. Ming

3817

GDF5 as a rejuvenating treatment for age-related neuromuscular failure

M. Traoré, C. Noviello, A. Vergnol, C. Gentil, M. Halliez, L. Saillard, M. Gelin, A. Forand, M. Lemaitre, Z. Guesmia, B. Cadot, E. Caldas de Almeida Araujo, B. Marty, N. Mougenot, J. Messéant, L. Strochlic, J. Sadoine, L. Slimani, A. Jolly, P. De la Grange, J.-Y. Hogrel, F. Pietri-Rouxel and S. Falcone

3834

Congenital myasthenic syndromes in adults: clinical features, diagnosis and long-term prognosis

J. Theuriet, M. Masingue, A. Behin, A. Ferreiro, G. Bassez, P. Jaubert, O. Tarabay, F. Fer, A. Pegat, F. Bouhour, J. Svahn, P. Petiot, L. Jomir, G. Chauplannaz, C. Cornut-Chauvinc, V. Manel, E. Salort-Campana, S. Attarian, E. Fortanier, A. Verschueren, L. Kouton, J.-P. Camdessanché, C. Tard, A. Magot, Y. Péron, J.-B. Noury, M.-C. Minot-Myhie, M. Perie, F. Taithe, Y. Farhat, A.-L. Millet, P. Cintas, G. Solé, M. Spinazzi, F. Esselin, D. Renard, S. Sacconi, A. Ezaru, E. Malfatti, M. Mallaret, L. Magy, E. Diab, P. Merle, M. Michaud, M. Fournier, A. N. Pakleza, J.-B. Chanson, C. Lefevre, P. Laforet, P. Richard, D. Sternberg, R.-N. Villar-Quiles, T. Stojkovic and B. Eymard

3849

Transient brain structure changes after high phenylalanine exposure in adults with phenylketonuria

R. Muri, C. Rummel, R. McKinley, M. Rebsamen, S. Maissen-Abgottsson, R. Kreis, P. Radojewski, K. Pospieszny, M. Hochuli, R. Wiest, R. Trepp and R. Everts

3863

A new type of blood-brain barrier aminoacidopathy underlies metabolic microcephaly associated with SLC1A4 mutations

M. Odeh, C. Sajrawi, A. Majcher, S. Zubedat, L. Shaulov, A. Radzishevsky, L. Mizrahi, W. K. Chung, A. Avital, T. Hornemann, D. J. Liebl, I. Radzishevsky and H. Wolosker
3874

A mutation in the PRKAR1B gene drives pathological mechanisms of neurodegeneration across species

T. Benjamin-Zukerman, G. Shimon, M. E. Gaine, A. Dakwar, N. Peled, M. Aboraya, A. Masri-Ismail, R. Safadi-Safa, M. Solomon, V. Lev-Ram, R. A. Rissman, J. E. Mayrhofer, A. Raffeiner, M. O. Mol, B. M. R. Argue, S. McCool, B. Doan, J. van Swieten, E. Stefan, T. Abel and R. Ilouz
3890

Distinct virtual histology of grey matter atrophy in four neuroinflammatory diseases

J. Sun, M. Guo, L. Chai, S. Xu, Y. Lizhu, Y. Li, Y. Duan, X. Xu, S. Lv, J. Weng, K. Li, F. Zhou, H. Li, Y. Li, X. Han, F.-D. Shi, X. Zhang, D.-C. Tian, Z. Zhuo and Y. Liu
3906

Differential reorganization of episodic and semantic memory systems in epilepsy-related mesiotemporal pathology

D. G. Cabalo, J. DeKraker, J. Royer, K. Xie, S. Tavakol, R. Rodríguez-Cruces, A. Bernasconi, N. Bernasconi, A. Weil, R. Pana, B. Frauscher, L. Caciagli, E. Jefferies, J. Smallwood and B. C. Bernhardt
3918

Multiple lines of evidence for disruption of nuclear lamina and nucleoporins in FUS amyotrophic lateral sclerosis

K. Okada, D. Ito, S. Morimoto, C. Kato, Y. Oguma, H. Warita, N. Suzuki, M. Aoki, J. Kuramoto, R. Kobayashi, M. Shinozaki, M. Ikawa, J. Nakahara, S. Takahashi, Y. Nishimoto, S. Shibata and H. Okano
3933

Biallelic null variants in PNPLA8 cause microcephaly by reducing the number of basal radial glia

Y. Nakamura, I. S. Shimada, R. Maroofian, M. Falabella, M. S. Zaki, M. Fujimoto, E. Sato, H. Takase, S. Aoki, A. Miyauchi, E. Koshimizu, S. Miyatake, Y. Arioka, M. Honda, T. Higashi, F. Miya, Y. Okubo, I. Ogawa, A. Scardamaglia, M. Miryounesi, S. Aljianpour, F. Ahmadabadi, P. Herkenrath, H. S. Dafsari, C. Velmans, M. Al Balwi, A. Vitobello, A.-S. Denommé-Pichon, M. Jeanne, A. Civit, M. S. Abdel-Hamid, H. Naderi, H. Darvish, S. Bakhtiari, M. C. Kruer, C. J. Carroll, E. Ghayoor Karimiani, R. A. Khailany, T. A. Abdulqadir, M. Ozaslan, P. Bauer, G. Zifarelli, T. Seifi, M. Zamani, C. Al Alam, J. R. Alvi, T. Sultan, S. Efthymiou, S. A. S. Pope, K. Haginoya, T. Matsunaga, H. Osaka, N. Matsumoto, N. Ozaki, Y. Ohkawa, S. Oki, T. Tsunoda, R. D. S. Pitceathly, Y. Taketomi, H. Houlden, M. Murakami, Y. Kato and S. Saitoh
3949