



THE CANADIAN JOURNAL OF

# Neurological Sciences

LE JOURNAL CANADIEN DES

# Sciences Neurologiques

AN INTERNATIONAL JOURNAL / UN JOURNAL INTERNATIONAL



Ants and Neurology



Neuroimaging Highlight

**39th CANADIAN  
CONGRESS OF  
NEUROLOGICAL  
SCIENCES**

June 8–12, 2004  
Calgary, Alberta

## EDITORIALS

- 181 Cannabis Use in Multiple Sclerosis: Excited Interest  
*Joep Killestein, Chris H. Polman*
- 183 Hockey Concussion Reporting Improved  
*Karen M. Johnston*

## REVIEW ARTICLES

- 184 Natural History of Absence Epilepsy in Children **CME**  
*Elaine C. Wirrell*
- 189 Canadian Association of Neuroscience Review: Development and Plasticity of the Auditory Cortex  
*Jun Yan*

## ORIGINAL ARTICLES

- 201 Cannabis Use as Described by People with Multiple Sclerosis  
*S.A. Page, M.J. Verhoef, R.A. Stebbins, L.M. Metz, J.C. Levy*
- 206 National Hockey League Reported Concussions, 1986-87 to 2001-02  
*R.A. Wennberg, C.H. Tator*
- 210 Headache as a Predictive Factor of Severe Systolic Hypertension in Acute Ischemic Stroke **CME**  
*Yoon-Ho Hong, Yong-Seok Lee, Seong-Ho Park*
- 215 p53 and MIB-1 Immunohistochemistry as Predictors of the Clinical Behavior of Nonfunctioning Pituitary Adenomas  
*Stephen J. Hentschel, Ian E. McCutcheon, Wayne Moore, Felix A. Durity*
- 220 The Treatment of Trigeminal Neuralgia in Patients with Multiple Sclerosis using Percutaneous Radiofrequency Rhizotomy  
*Caglar Berk, Constantine Constantoyannis, Christopher R. Honey*
- 224 Respiratory Pattern Changes in Sleep in Children on Vagal Nerve Stimulation for Refractory Epilepsy  
*Lakshmi Nagarajan, Peter Walsh, Pauline Gregory, Stephen Stick, Jennifer Maul, Soumya Ghosh*
- 228 Temporal Lobe Epilepsy as a Unique Manifestation of Multiple Sclerosis  
*Antonio Gambardella, Paola Valentino, Angelo Labate, Grazia Sibilila, Francesca Ruscica, Eleonora Colosimo, Rita Nisticò, Demetrio Messina, Mario Zappia, Aldo Quattrone*
- 233 Variable Phenotype in a P102L Gerstmann-Sträussler-Scheinker Italian Family  
*Giuseppe De Michele, Maurizio Pocchiari, Rossella Petraroli, Mario Manfredi, Giorgio Caneve, Giovanni Coppola, Carlo Casali, Francesco Saccà, Pedro Piccardo, Elena Salvatore, Alfredo Berardelli, Marcello Orio, Fabrizio Barbieri, Bernardino Ghetti, Alessandro Filla*
- 237 The Consortium to Investigate Vascular Impairment of Cognition: Methods and First Findings  
*Kenneth Rockwood, Heather Davis, Chris MacKnight, Robert Vandorpe, Serge Gauthier, Antonio Guzman, Patrick Montgomery, Sandra Black, David B. Hogan, Andrew Kertesz, Remi Bouchard, Howard Feldman*
- 244 hnRNP A1 and A/B Interaction with PABPN1 in Oculopharyngeal Muscular Dystrophy  
*Xueping Fan, Christiane Messaed, Patrick Dion, Janet Laganieri, Bernard Brais, George Karpati, Guy A. Rouleau*

## EXPERIMENTAL NEUROSCIENCES

- 252 Treadmill Training Effects on Neurological Outcome After Middle Cerebral Artery Occlusion in Rats  
*Yea-Ru Yang, Ray-Yau Wang, Paulus Shyi-Gang Wang, Shang-Ming Yu*
- 259 Mefenamate, an Agent that Fails to Attenuate Experimental Cerebral Infarction  
*John J. Kelly, Roland N. Auer*

## NEUROIMAGING HIGHLIGHT **CME**

- 263 Submitted by: *Richard Wennberg, Sukriti Nag, Mary-Pat McAndrews, Andres M. Lozano, Richard Farb, David Mikulis*

## CASE REPORTS (See Contents Page)

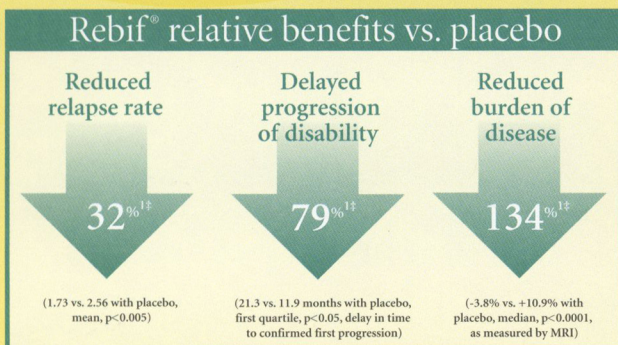
## HISTORICAL NEUROSCIENCE

- 284 Auguste Forel on Ants and Neurology  
*André Parent*

*The official Journal of:* The Canadian Neurological Society, The Canadian Neurosurgical Society, The Canadian Society of Clinical Neurophysiologists, The Canadian Association of Child Neurology



Picture what Rebif<sup>®</sup> might do for your MS patients.<sup>Δ</sup>



Results of the 44 mcg TIW dose at 2 years.<sup>1</sup>

In two pivotal studies, including a total of 628 patients, Rebif showed significant efficacy in three major outcomes (relapses, disability progression and MRI).<sup>1,2</sup>

Its ability to affect the course of the disease<sup>2</sup> has made Rebif not only a good first-line choice for relapsing-remitting MS, but the leading drug in its class.<sup>3</sup>

Rebif is generally well-tolerated. The most common adverse events are often manageable and decrease in frequency and severity over time.<sup>2†</sup>

Rebif alters the natural course of relapsing-remitting MS.<sup>2</sup>

Rebif<sup>®</sup> is indicated for the treatment of relapsing-remitting multiple sclerosis in patients with an EDSS between 0 and 5.0, to reduce the number and severity of clinical exacerbations, slow the progression of physical disability, reduce the requirement for steroids, and reduce the number of hospitalizations for treatment of multiple sclerosis. The efficacy of Rebif has been confirmed by T<sub>1</sub>-Gd enhanced and T<sub>2</sub> (burden of disease) MRI evaluations.<sup>2</sup>

† The most common adverse events reported are injection-site disorders (all) (92.4% vs. 38.5% placebo), upper respiratory tract infections (74.5% vs. 85.6% placebo), headache (70.1% vs. 62.6% placebo), flu-like symptoms (58.7% vs. 51.3% placebo), fatigue (41.3% vs. 35.8% placebo) and fever (27.7% vs. 15.5% placebo). Evidence of safety and efficacy derived from 2-year data only. Please see product monograph for full prescribing information.<sup>2</sup>

‡ Randomized, double-blind, placebo-controlled trial. Rebif 44 mcg TIW group (n=184), Rebif 22 mcg TIW group (n=189), placebo group (n=187).<sup>1</sup>

Δ Fictitious case may not be representative of results for the general population.



FOR MULTIPLE REASONS.



THE CANADIAN JOURNAL OF

# Neurological Sciences

LE JOURNAL CANADIEN DES

# Sciences Neurologiques

## EDITORIALS

- 181 Cannabis Use in Multiple Sclerosis: Excited Interest  
*Joep Killestein, Chris H. Polman*
- 183 Hockey Concussion Reporting Improved  
*Karen M. Johnston*

## REVIEW ARTICLES

- 184 Natural History of Absence Epilepsy in Children  
*Elaine C. Wirrell*
- 189 Canadian Association of Neuroscience Review: Development and Plasticity of the Auditory Cortex  
*Jun Yan*

## ORIGINAL ARTICLES

- 201 Cannabis Use as Described by People with Multiple Sclerosis  
**CME** *S.A. Page, M.J. Verhoef, R.A. Stebbins, L.M. Metz, J.C. Levy*
- 206 National Hockey League Reported Concussions, 1986-87 to 2001-02  
*R.A. Wennberg, C.H. Tator*
- 210 Headache as a Predictive Factor of Severe Systolic Hypertension in Acute Ischemic Stroke  
**CME** *Yoon-Ho Hong, Yong-Seok Lee, Seong-Ho Park*
- 215 p53 and MIB-1 Immunohistochemistry as Predictors of the Clinical Behavior of Nonfunctioning Pituitary Adenomas  
*Stephen J. Hentschel, Ian E. McCutcheon, Wayne Moore, Felix A. Durity*
- 220 The Treatment of Trigeminal Neuralgia in Patients with Multiple Sclerosis using Percutaneous Radiofrequency Rhizotomy  
*Caglar Berk, Constantine Constantoyannis, Christopher R. Honey*
- 224 Respiratory Pattern Changes in Sleep in Children on Vagal Nerve Stimulation for Refractory Epilepsy  
*Lakshmi Nagarajan, Peter Walsh, Pauline Gregory, Stephen Stick, Jennifer Maul, Soumya Ghosh*
- 228 Temporal Lobe Epilepsy as a Unique Manifestation of Multiple Sclerosis  
*Antonio Gambardella, Paola Valentino, Angelo Labate, Grazia Sibilgia, Francesca Ruscica, Eleonora Colosimo, Rita Nisticò, Demetrio Messina, Mario Zappia, Aldo Quattrone*
- 233 Variable Phenotype in a P102L Gerstmann-Sträussler-Scheinker Italian Family  
*Giuseppe De Michele, Maurizio Pocchiari, Rossella Petraroli, Mario Manfredi, Giorgio Caneve, Giovanni Coppola, Carlo Casali, Francesco Saccà, Pedro Piccardo, Elena Salvatore, Alfredo Berardelli, Marcello Orio, Fabrizio Barbieri, Bernardino Ghetti, Alessandro Filla*

- 237 The Consortium to Investigate Vascular Impairment of Cognition: Methods and First Findings  
*Kenneth Rockwood, Heather Davis, Chris MacKnight, Robert Vandorpe, Serge Gauthier, Antonio Guzman, Patrick Montgomery, Sandra Black, David B. Hogan, Andrew Kertesz, Remi Bouchard, Howard Feldman*
- 244 hnRNP A1 and A/B Interaction with PABPN1 in Oculopharyngeal Muscular Dystrophy  
*Xueping Fan, Christiane Messaed, Patrick Dion, Janet Laganiere, Bernard Brais, George Karpati and Guy A. Rouleau*

## EXPERIMENTAL NEUROSCIENCES

- 252 Treadmill Training Effects on Neurological Outcome After Middle Cerebral Artery Occlusion in Rats  
*Yea-Ru Yang, Ray-Yau Wang, Paulus Shyi-Gang Wang, Shang-Ming Yu*
- 259 Mefenamate, an Agent that Fails to Attenuate Experimental Cerebral Infarction  
*John J. Kelly, Roland N. Auer*

## 263 NEUROIMAGING HIGHLIGHT

- CME** Submitted by: *Richard Wennberg, Sukriti Nag, Mary-Pat McAndrews, Andres M. Lozano, Richard Farb, David Mikulis*

## CASE REPORTS

- 266 Multiple Brain Abscesses Caused by *Fusobacterium nucleatum* Treated Conservatively  
*Josef G. Heckmann, Christoph J.G. Lang, Heinz Hart, Bernd Tomand*
- 269 Paraneoplastic Sensory Neuronopathy and Spontaneous Regression of Small Cell Lung Cancer  
*Sharlene Gill, Nevin Murray, Josep Dalmau and Brian Thiessen*
- 272 Dural Cavernous Angioma: A Preoperative Diagnostic Challenge  
*Dominic Rosso, Donald H. Lee, Gary G. Ferguson, Chetna Tailor, Sam Iskander, Robert R. Hammond*
- 278 Artificial Disc Insertion Following Anterior Cervical Discectomy  
*Gwynedd E. Pickett, Neil Duggal*

## HISTORICAL NEUROSCIENCE

- 284 Auguste Forel on Ants and Neurology  
*André Parent*
- 292 Books Received
- 292 Book Reviews
- 297 Calendar of Events
- A-8 Information for Authors
- A-44 Advertisers Index

**CME** Visit [www.ccns.org](http://www.ccns.org)  
for instructions on  
obtaining online Journal  
CME credits



THE CANADIAN JOURNAL OF

# Neurological Sciences

LE JOURNAL CANADIEN DES

# Sciences Neurologiques

**Editor-in-Chief/Rédacteur en chef**

Douglas W. Zochodne CALGARY, AB

**Associate Editors/Rédacteurs associés**

William A. Fletcher CALGARY, AB

Andres M. Lozano TORONTO, ON

**Past Editors/Anciens rédacteurs en chef**

James A. Sharpe TORONTO, ON

Robert G. Lee CALGARY, AB

Robert T. Ross WINNIPEG, MB

(Emeritus Editor, Founding Editor)

**Editorial Board/Conseil Scientifique**

Timothy J. Benstead HALIFAX, NS

J. Gregory Cairncross CALGARY, AB

Richard Desbiens QUEBEC CITY, QC

J. Max Findlay EDMONTON, AB

Hans-Peter Hartung DUSSELDORF, GERMANY

Renn Holness HALIFAX, NS

Alan C. Jackson KINGSTON, ON

Jack Jhamandas EDMONTON, AB

Douglas Kondziolka PITTSBURGH, PA, USA

Terence Myles CALGARY, AB

John H. Noseworthy ROCHESTER, MN, USA

David Ramsay LONDON, ON

Peter M. Richardson LONDON, UK

Guy Rouleau MONTREAL, QC

Shashi S. Seshia WINNIPEG, MB

Michael Shevell MONTREAL, QC

Paul Steinbok VANCOUVER, BC

Jonathan A. Stoessl VANCOUVER, BC

Samuel Wiebe LONDON, ON

**SECTION EDITORS/CONSEIL DE RÉDACTION**

**Neuroimaging Highlight/Neuroimagerie**

Mark Hudon CALGARY, AB

William Hu CALGARY, AB

**Neuropathological Conference/Conférence sur la neuropathologie**

David Ramsay LONDON, ON

**Book Review/Critiques de livres**

Christopher White CALGARY, AB

**Managing Director/Gérant directrice**

Sally A. Gregg CALGARY, AB

**Publications Committee/Comité de Rédaction**

G. Bryan Young LONDON, ON

Owen Williams WINNIPEG, MB

Joseph Chu ETOBICOKE, ON

Noel Lowry SASKATOON, SK

**The official journal of: / La Revue officielle de:**

**The Canadian Neurological Society  
La Société Canadienne de Neurologie**

**The Canadian Neurosurgical Society  
La Société Canadienne de Neurochirurgie**

**The Canadian Society of Clinical Neurophysiologists  
La Société Canadienne de Neurophysiologie Clinique**

**The Canadian Association of Child Neurology  
L'Association Canadienne de Neurologie Pédiatrique**

The permanent secretariat for the four societies and the Canadian Congress of Neurological Sciences is at:

Le secrétariat des quatre associations et du Congrès Canadien des Sciences Neurologiques est situé en permanence à:

7015 Macleod Trail SW, Suite 709, Calgary AB, Canada T2H 2K6.

The Canadian Journal of Neurological Sciences is published quarterly. The annual subscription rate for Individuals are: C\$80 (Canada), US\$80 (USA), and US\$85 (elsewhere). Subscription rates for Institutions are: C\$90 (Canada), US\$90 (USA), and US\$95 (elsewhere). Resident, intern and student rates are available. See [www.cjns.org](http://www.cjns.org) for details. Single copies C\$22 each plus postage and handling. All manuscripts and communications should be sent to: Canadian Journal of Neurological Sciences, P.O. Box 5456, Station A, Calgary, AB Canada T2H 1X8. Courier to: 709 - 7015 Macleod Trail SW, Calgary, AB Canada T2H 2K6. Telephone (403) 229-9575; Fax (403) 229-1661. E-mail: [journal@cjns.org](mailto:journal@cjns.org); Website: [www.cjns.org](http://www.cjns.org) COPYRIGHT © 2003 by THE CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES INC. All rights reserved. No part of this journal may be reproduced in any form without the prior permission of The Canadian Journal of Neurological Sciences. Mailed under Publications Mail Registration number 09824. Postage paid at Calgary, Alberta. This journal is indexed by *Aquatic Sciences and Fisheries Abstracts*, *ASCA - Automatic Subject Citation Alert*, *Biological Abstracts*, *Chemical Abstracts*, *Current Advances in Ecological Sciences*, *Current Contents (Clinical Medicine and Life Sciences)*, *Dent. Index*, *e-psyche*, *Excerpta Medica*, *Index Medicus*, *Industrial Science Review*, *INIS Atomindex*, *Inpharma*, *Journal Watch Neurology*, *International Abstracts in Biological Sciences*, *Laboratory Hazards Bulletin*, *Neurosciences Citation Index*, *Nutrition Abstracts*, *Nutrition Research Newsletter*, *Pharmacoeconomics and Outcome News*, *Reactions Weekly*, *Referativnyi Zhurnal*, *Science Citation Index*, *Weed Abstracts*

Le Journal Canadien des Sciences Neurologiques est publié trimestriellement. L'abonnement annuel est de 80 \$C (non-membres au Canada); 80 \$É-U (Etats Unis) et 85 \$É-U (ailleurs); l'abonnement annuel pour les institutions est de 90 \$C (non-membres au Canada); 90 \$É-U (Etats Unis) et 95 \$É-U (ailleurs); Internes, résidents, fellows pré et post doctoral voir [www.cjns.org](http://www.cjns.org) pour détails. Copie simple: 22 \$C plus affranchissement et manutention. Toutes les communications et les manuscrits doivent être adressés à Journal Canadien des Sciences Neurologiques, P.O. Box 5456, Station A, Calgary, AB Canada T2H 1X8. Par courrier: 709 - 7015 Macleod Trail SW, Calgary, AB Canada T2H 2K6. Téléphone (403) 229-9575; Fax (403) 229-1661. E-mail: [journal@cjns.org](mailto:journal@cjns.org); Website: [www.cjns.org](http://www.cjns.org) DROITS D'AUTEUR © 2003; THE CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES INC. Tous droits réservés. Aucune partie de ce Journal ne peut être reproduite, sous quelque forme que ce soit, sans la l'autorisation du Journal Canadien des Sciences Neurologiques. Posté sous registration de poste-publications no 09824. Port payé à Calgary, Alberta. Le Journal est cité et indexé dans *Aquatic Sciences and Fisheries Abstracts*, *ASCA - Automatic Subject Citation Alert*, *Biological Abstracts*, *Chemical Abstracts*, *Current Advances in Ecological Sciences*, *Current Contents (Clinical Medicine and Life Sciences)*, *Dent. Index*, *e-psyche*, *Excerpta Medica*, *Index Medicus*, *Industrial Science Review*, *INIS Atomindex*, *Inpharma*, *Journal Watch Neurology*, *International Abstracts in Biological Sciences*, *Laboratory Hazards Bulletin*, *Neurosciences Citation Index*, *Nutrition Abstracts*, *Nutrition Research Newsletter*, *Pharmacoeconomics and Outcome News*, *Reactions Weekly*, *Referativnyi Zhurnal*, *Science Citation Index*, *Weed Abstracts*.

**Advertising representative/Représentant de publicité:**

Sally Gregg, Canadian Journal of Neurological Sciences

709 - 7015 Macleod Trail SW, Calgary, AB Canada T2H 2K6

Tel (403) 229-9575 Fax (403) 229-1661

E-mail: [journal@cjns.org](mailto:journal@cjns.org); Web Site: [www.cjns.org](http://www.cjns.org)

**Printer/Imprimeur:**

Sundog Printing Limited, 1311 Ninth Avenue SW, Calgary, Alberta T3C 0H9

ISSN 0317 - 1671

For Patients With RRMS  
**COPAXONE®** Delivers  
More. Like. Different.



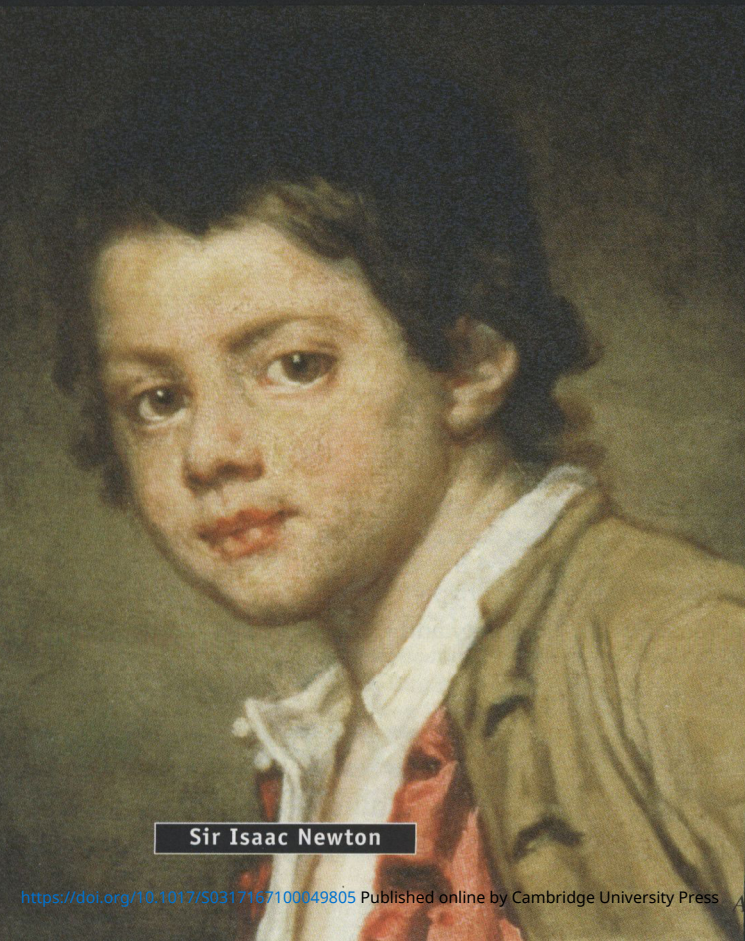


Vincent Van Gogh

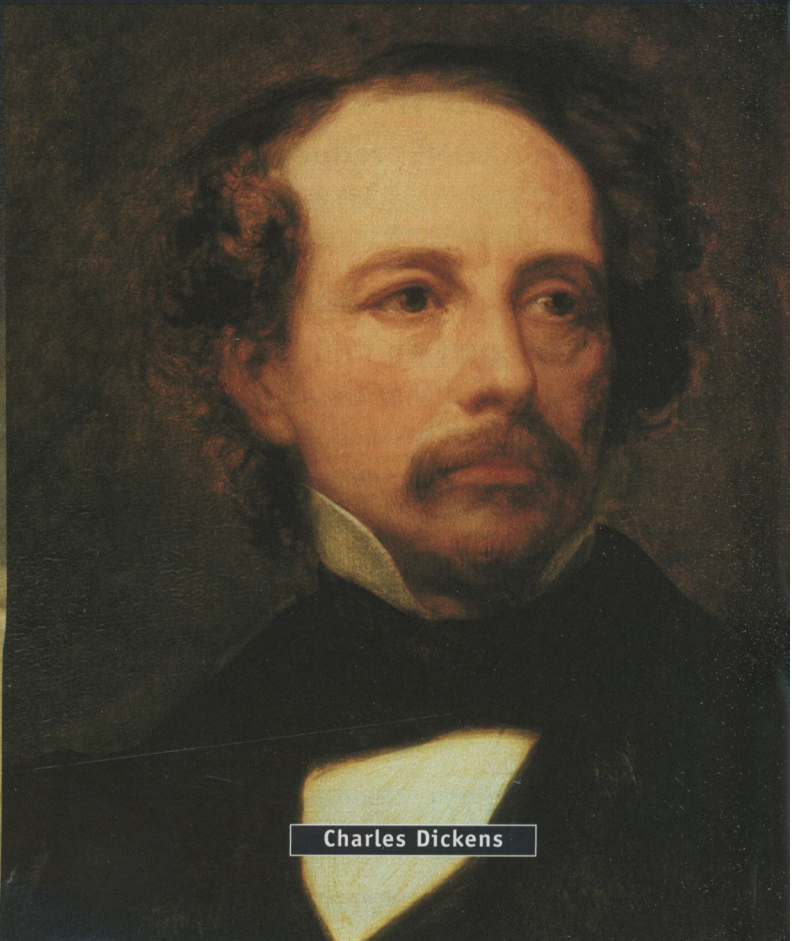


Joan of Arc

**YESTERDAY, PEOPLE WITH EPILEPSY  
HAD TO BE EXTRAORDINARY TO SUCCEED.**



Sir Isaac Newton



Charles Dickens

# EFFICACY ACROSS A BROAD RANGE OF SEIZURES.

- TOPAMAX demonstrates efficacy in Partial Onset, Primary Generalized Tonic-Clonic, and Lennox-Gastaut Seizures<sup>1</sup>
- Desirable seizure-free results were shown in both Adults (19%)<sup>†</sup> and Children (22%)<sup>‡</sup> with Partial Onset Seizures<sup>2,3</sup>

## NO EVIDENCE OF LIFE-THREATENING SIDE EFFECTS.

- Like most antiepileptics, the most common side effects are CNS related, usually mild to moderate and transient<sup>§1</sup>

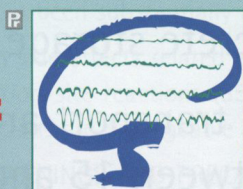
## ADULT PATIENTS MAY EXPERIENCE WEIGHT LOSS.

- 73% of patients (n = 52) showed a mean weight decrease of 5.97 lb (Interim analysis. Average duration 60 days)<sup>4</sup>
- 96% of children in clinical trials (≥ one year) who lost weight showed resumption of weight gain in test period<sup>\*\*1</sup>

**TODAY, THERE'S TOPAMAX.**

## B.I.D. DOSING WITH THE PATIENT IN MIND.

- TOPAMAX is initiated and titrated to clinical response regardless of existing anticonvulsant therapy
- Tablets available on formulary<sup>††</sup>



**TOPAMAX**<sup>\*</sup>  
topiramate

**NOW AVAILABLE  
IN SPRINKLE  
CAPSULES**

**NOW INDICATED  
FOR CHILDREN**

## HELPING PATIENTS MAKE MORE OF THEIR LIVES.

*<sup>\*</sup>TOPAMAX<sup>\*</sup> topiramate Tablets and Sprinkle Capsules: indicated as adjunctive therapy for the management of patients (adults and children two years and older) with epilepsy who are not satisfactorily controlled with conventional therapy. There is limited information on the use of topiramate in monotherapy at this time<sup>†</sup>*

<sup>†</sup> Open label, 20 week trial (n = 450 Adults). Optimal dosing was 300-350 mg/day (Average 288 mg/day).

<sup>‡</sup> Open label trial for children (n = 72) treated for ≥ 3 months. Average dose of 10 mg/kg/day.

<sup>§</sup> CNS adverse events: Somnolence (30.1%), dizziness (28.3%), ataxia (21.2%), speech disorders (16.8%), psychomotor slowing (16.8%), nystagmus (15.0%), paresthesia (15.0%), nervousness (15.9%), difficulty with concentration/attention (8.0%), confusion (9.7%), depression (8.0%), anorexia (5.3%), language problems (6.2%) and mood problems (3.5%). In an audit of 1446 adults and 303 children, there appeared to be a similar pattern of adverse events.

<sup>\*\*</sup> The long-term effects of weight loss in pediatric patients are not known.

<sup>††</sup> Limited use benefit: Ontario, Nova Scotia, New Brunswick, PEI. Full benefit: Quebec, Saskatchewan, British Columbia, Alberta, Manitoba.

Please refer to the TOPAMAX Prescribing Information for complete prescribing details.

REFERENCES: 1. TOPAMAX<sup>\*</sup> topiramate Tablets and Sprinkle Capsules Product Monograph, May 11, 1999. 2. Kamin M, Kraut L, Olson W. Dose optimization of topiramate as add-on therapy in adults with treatment-resistant partial-onset seizures *Neurology* 1999;52 (Suppl 2):A525-526. 3. Glauser TA, Elterman R, Wyllie E et al. Open label topiramate in paediatric partial epilepsy *Epilepsia* 1997;38 (Suppl 3):94. 4. Rosenfeld WE et al. Topiramate and concomitant weight loss. *Epilepsia* 1997;38 (Suppl 8):98.

# NOW

# BET



“*Now my family and I don't have to confront my MS every time I open the fridge door.*”

—Teresa, MS focus group, April 2002

**REFRIGERATION-FREE**  
storage for a new level  
of convenience

- New discrete storage flexibility
- Easier to transport and travel with (keep between 15 and 30 °C)

BETASERON® is a registered trademark of Berlex Canada Inc.





NEW REFRIGERATION-FREE  
STORAGE

# BETASERON® BETTER THAN EVER

Same proven therapy

- Reduces relapse FREQUENCY and SEVERITY in RRMS<sup>1-3</sup>
- Backed by MS Pathways™ of Canada patient management support with toll-free hotline access to MS-specialized registered nurses

BETASERON® (interferon beta-1b) is indicated for the reduction of the frequency of clinical exacerbations in ambulatory patients with relapsing-remitting multiple sclerosis and for the slowing of progression in disability and the reduction of the frequency of clinical exacerbations in patients with secondary-progressive multiple sclerosis.

The safety and efficacy of BETASERON® in primary progressive MS have not been evaluated. Efficacy of treatment for longer than 2 years has not been substantially demonstrated in relapsing-remitting multiple sclerosis (RRMS).

The most common side effects related to BETASERON® in patients with RRMS are: flu-like syndrome (76%), fever (59%), chills (46%), injection-site reactions (85%), myalgia (44%), asthenia (49%) and malaise (15%).<sup>2</sup> Flu-like symptoms and injection-site reactions are manageable and lessen with time.<sup>2</sup>

FOR COMPLETE WARNINGS AND PRECAUTIONS, PLEASE REFER TO THE PRODUCT MONOGRAPH, AVAILABLE TO HEALTH CARE PROFESSIONALS UPON REQUEST.



[www.betaseron.ca](http://www.betaseron.ca)  
[www.mspathways.ca](http://www.mspathways.ca)

## INFORMATION FOR AUTHORS

The Canadian Journal of Neurological Sciences publishes original articles in neurology, neurosurgery and basic neurosciences. Manuscripts are considered for publication with the understanding that they, or the essence of their content, have not been published elsewhere except in abstract form and are not under simultaneous consideration by another journal. Articles undergo peer review. Manuscripts should be submitted to: Douglas Zochodne, M.D., Editor. Canadian Journal of Neurological Sciences, P.O. Box 5456, Station A, Calgary, AB, Canada T2H 1X8

### Manuscript Preparation

- Submit five high quality copies of the manuscript and original illustrations. Papers will be accepted in English or French. Manuscripts must be double spaced throughout including references, tables and legends for illustrations. Margins of at least 25mm should be left on all sides.
- After a paper has been reviewed, the author will be requested to submit four copies of the revised manuscript, including illustrations. Supply a computer diskette (3 1/2" size) containing the article *saved in an RTF format*. Identify clearly first author's name, file name, word processing program and version, and system (i.e. PC or Mac). Clearly indicate the order and importance of headings.
- For detailed instructions regarding style and layout refer to "Uniform requirements for manuscripts submitted to biomedical journals". Copies of this document may be obtained by writing to the Journal office, but the main points are summarized here. Articles should be submitted under conventional headings of *introduction, methods and materials, results, discussion*, but other headings will be considered if more suitable. Clinical trials must be reported in Consort format (JAMA 1996; 276: 637-639). Pages of text should be numbered consecutively.
- A **title page** should identify the title of the article which should be no more than 80 characters including spaces; name of institution(s) from which the work originated; and the name, address, telephone, and fax number of the corresponding author.
- **Abstract** Original Articles should be accompanied by an abstract of 250 words or less on a separate page, preferably in English and French, although the Journal will provide translation if required. Abstracts of original articles should consist of four paragraphs headed: *Background (or objective), Methods, Results and Conclusions*. Review articles should be accompanied by an abstract of 150 words or less.
- **Acknowledgements** including recognition of financial support should be typed on a separate page at the end of the text.
- The SI system (système international d'unités) should be used in reporting all laboratory data, even if originally reported in another system. Temperatures are reported in degrees celsius. English language text may use either British or American spelling, but should be consistent throughout.
- **References** should be numbered in the order of their citation in the text. Those cited only in tables and legends for illustrations are numbered according to the sequence established by the first identification in the text of a particular table or illustration. Titles of journals should be abbreviated according to the style used in Index Medicus. References should list the names of up to five authors; if there are more, cite the first three, then *et al*. Provide the full title, year of publication, volume number and inclusive pagination for journal articles. For any reference cited as "in press", five copies of the article must accompany the author's manuscript. Do not reference unpublished or "submitted" papers; these can be mentioned in the body of the text and authors must provide five copies of "submitted" manuscripts.

Avoid "personal communications" and, if necessary, include them in the body of the text, not among the references. Reference citations should not include unpublished presentations or other non-accessible material. Books or chapter references should also include the place of publication and the name of the publisher. Examples of correct forms of reference follow:

#### Journals

Yang JF, Fung M, Edamura R, et al. H-Reflex modulation during walking in spastic paretic subjects. *Can J Neurol Sci* 1991; 18: 443-452.

#### Chapter in a book

McGeer PL, McGeer EG. Amino acid neurotransmitters. *In*: Siegel GJ, Albers RW, Agranoff BW, Katzman R, eds. *Basic Neurochemistry*. Boston: Little, Brown & Co., 1981: 233-254.

- **Illustrations** Submit five original sets of illustrations. We will not return illustrations; therefore, authors should keep negatives for all photographs. Submit high quality glossy black and white photographs preferable 127 x 173 mm (5" x 7"). This includes graphs and diagrams. Do NOT send photocopies of illustrations. Original artwork and radiographs should not be submitted. The additional cost of coloured illustrations must be borne by the author; quotations are available upon request from the Journal office. Identify each figure with a label at the back indicating top, figure number and first author. Letters and arrows applied to the figures to identify particular findings should be professional appliques suitable for publication. Photomicrographs should include a calibration bar with a scale indicated on the figure or in the legend. Legends for illustrations should be typed on a separate page from the illustrations.
- **Tables** Type tables double-spaced on pages separate from the text. Provide a table number and title for each. Particular care should be taken in the preparation of tables to ensure that the data are presented clearly and concisely. Each column should have a short or abbreviated heading. Place explanatory matter in footnotes, not in the heading. Do not submit tables as photographs.
- **Review articles** on selected topics are also published. They are usually invited, but unsolicited reviews will be considered. It is recommended that authors intending to submit review articles contact the Editor in advance.
- **Letters to the Editor** concerning matters arising in recent articles are welcome. Letters should be limited to two double-spaced pages and may include one illustration and a maximum of four references.
- **Permissions and Releases** Any non-original material (quotations, tables, figures) must be accompanied by written permission from the author and the copyright owner to reproduce the material in the Journal. Permission must be for **print and electronic** media. Photographs of recognizable persons must be accompanied by a signed release from the legal guardian or patient authorizing publication.
- **Conflict of Interest** Authors who have non-scientific or non-academic gain whether it be financial or other from publishing their article are responsible for declaring it to the Editor. Any financial interest, research grant, material support, or consulting fee associated with the contents of the manuscript must be declared to the Editor. These guidelines apply to each author and their immediate families. Conflicts of interest are not necessarily wrong nor do they necessarily change the scientific validity of research or opinion, but the Journal and readers should be aware of the conflict. If the Editor considers the conflict to compromise the validity of the paper, it will not be accepted for publication. Authors, editorial staff and reviewers are asked to declare any relationship that would be considered as a conflict of interest whether or not they believe that a conflict actually exists. Information that the Journal receives about conflict or potential conflict will be kept confidential unless the Editor or Associate Editor considers it to be important to readers. Such conflicts will be published in the author credits or as a footnote to the paper, with knowledge of the authors.

# Are all IGIVs the same?

Creative by Euro RSCG Life



All IGIVs (Immune Globulin Intravenous (Human)) are manufactured differently. Could this impact a product's efficacy or tolerability?

The medical community now expects solid evidence-based medicine through:

- controlled and comparative trial designs
- well-defined clinical endpoints
- appropriate trial size

At Bayer, we agree.

**Bayer believes in taking  
a New Perspective.**

what's **next** in IGIV?



[www.bayerbiologicals.com](http://www.bayerbiologicals.com)



**Bayer HealthCare**  
Biological Products Division



# PORTRAIT OF A FAMILY HISTORY

ARTICLE IN PRESS



HISTORY DOESN'T HAVE TO REPEAT ITSELF

Help Reduce the  
Risk of CV Death  
by **26%**<sup>1</sup>

( $p > 0.001$ ; 6.1% vs. 8.1%)

ALTACE 10 mg.  
The proven CV risk reduction dose.<sup>1</sup>



**ALTACE**<sup>®</sup> 10 mg  
ramipril

GUARDING AGAINST CV DEATH

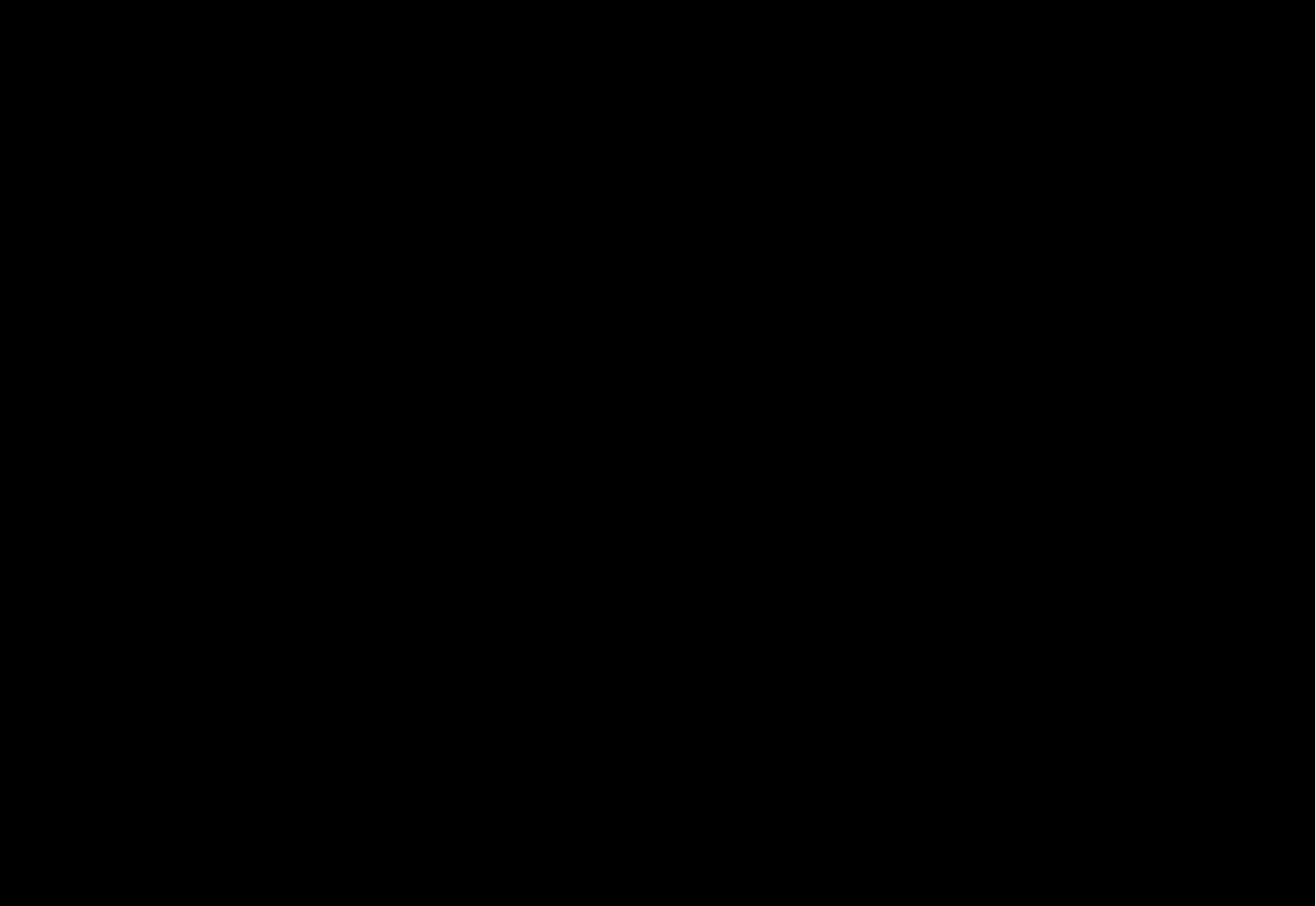
ALTACE is the most prescribed ACEI  
among cardiologists.\*

\* IMS Health Canada: Canadian Compuscript Audit, Year 2002 Total Prescriptions





# BETA



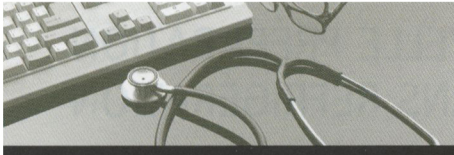


NOUVELLE PRÉPARATION  
SANS RÉFRIGÉRATION

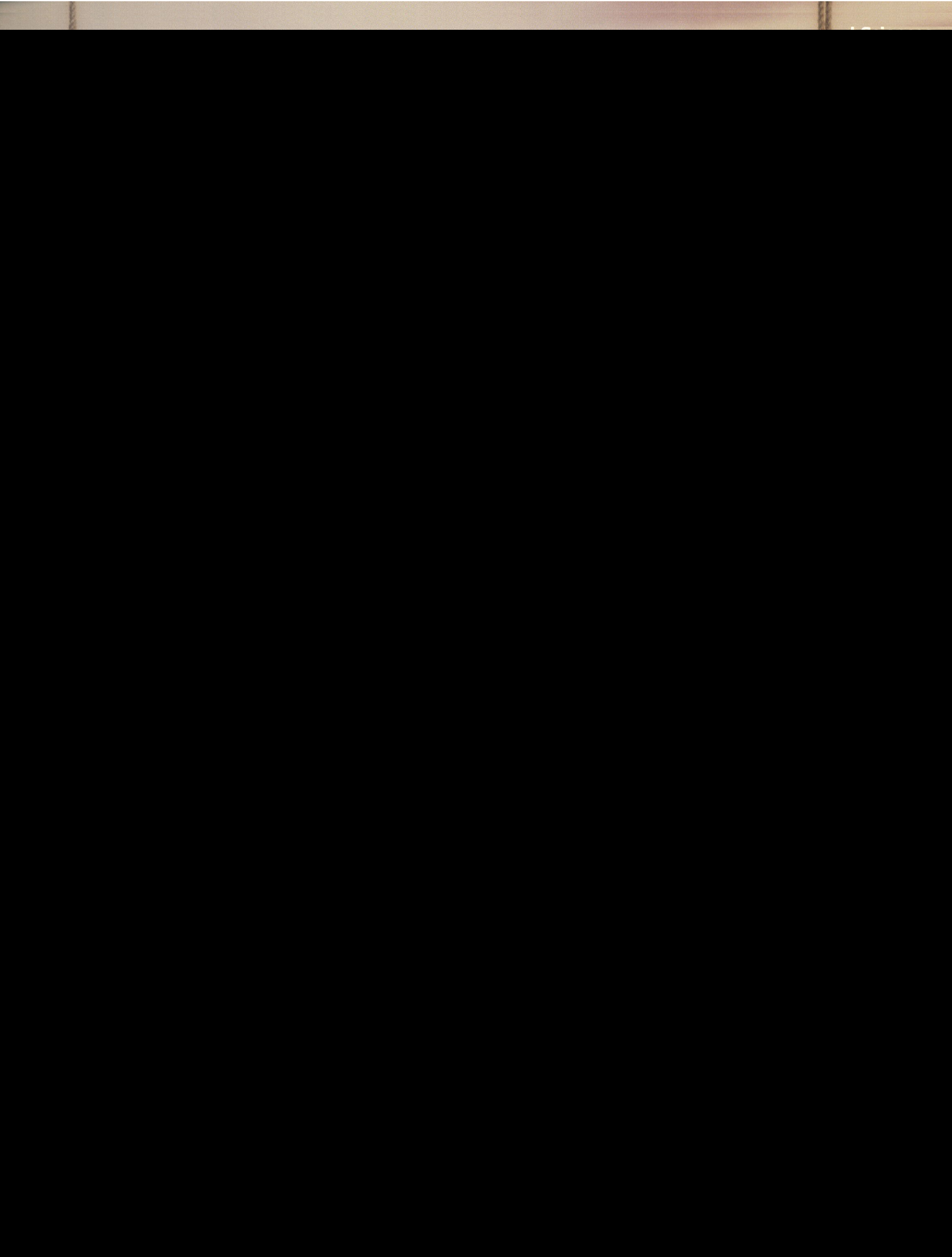


SERON...

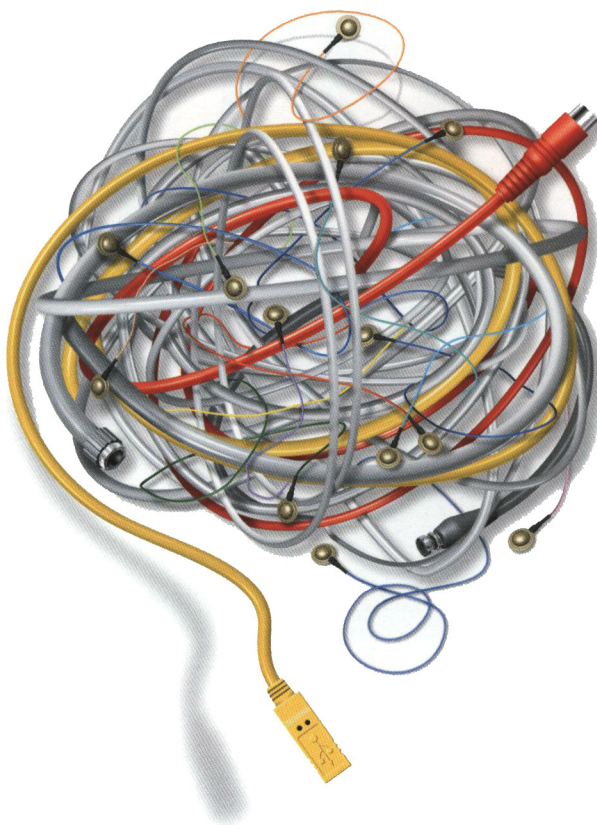




**THE CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES**  
**LE JOURNAL CANADIEN DES SCIENCES NEUROLOGIQUES**



## From uncontrolled



## New Keppra — connecting excellent profiles in efficacy and tolerability

### Effective control of seizures

- Shown to provide up to 4 out of 10 refractory patients with  $\geq 50\%$  reduction in partial onset seizures ( $p < 0.001$ )
- Rapid clinical improvement demonstrated by week 2 during a 14-week evaluation period ( $p < 0.001$ )<sup>11</sup>

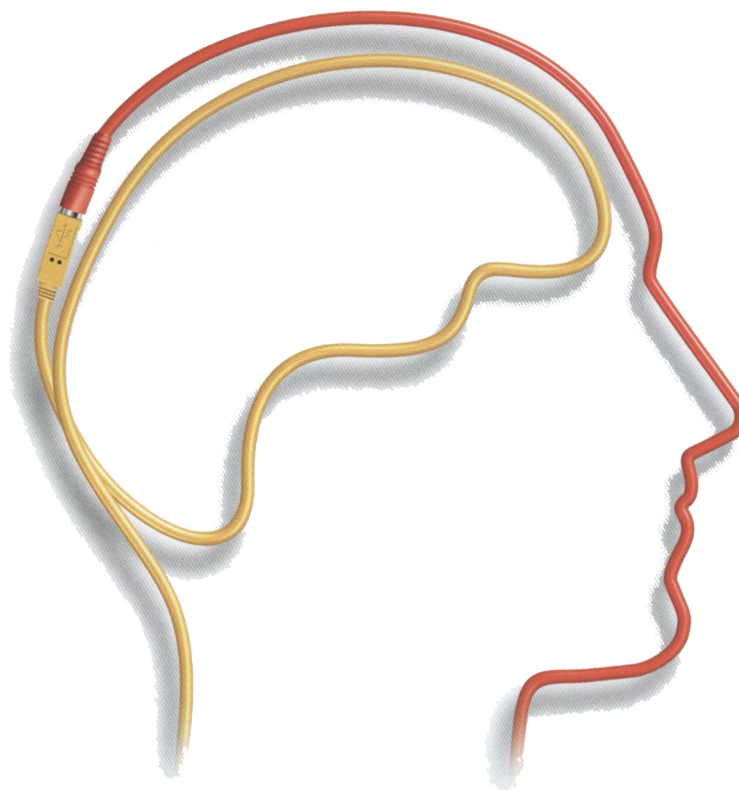


For more information, please refer to the complete Keppra Product Monograph.  
 © Keppra is a registered trademark of UCB S.A. Distributed by Lundbeck Canada Inc. 

Keppra is indicated as adjunctive therapy in the management of patients with epilepsy who are not satisfactorily controlled by conventional therapy.

The most significant CNS adverse events were somnolence (Keppra 15% vs placebo 10%) and asthenia (Keppra 14% vs placebo 10%), behavioural/psychiatric symptoms (nonpsychotic: Keppra 14% vs placebo 6%; psychotic: Keppra 1% vs placebo 0%) and coordination difficulties (Keppra 3% vs placebo 2%). These adverse events were observed in controlled clinical trials with concomitant AEDs.

# to control



## Generally well tolerated

- Favourable side effect profile
- Adverse events not dose dependent<sup>‡</sup>
- Low discontinuation or dosage reduction (Keppra 14.3% vs placebo 11.7%) due to adverse events<sup>†</sup>

## Efficacy and manageability right from the start

- Starting dose of 1000 mg/day (500 mg bid) shown to be effective and may be adjusted to a maximum of 3000 mg/day if required
- No blood level monitoring required
- No drug/drug interactions<sup>‡</sup> with other AEDs, warfarin, digoxin or between Keppra 500 mg bid and a combination oral contraceptive (0.03 mg ethinyl estradiol and 0.15 mg levonorgestrel)<sup>§</sup>

§ Note: Pharmacokinetic interaction studies with contraceptives have not been conducted covering the full recommended dosage range of Keppra. Physicians should advise their female patients to be alert to any irregular vaginal bleeding or spotting and report any occurrences.

\* Data from a 38-week multicentre, randomised, add-on, double-blind, placebo-controlled, parallel-group trial. Study consisted of a 4-week titration period followed by a 14-week evaluation period. Patients received either levetiracetam 1000 mg/day (n = 98), 3000 mg/day (n = 101) or placebo (n = 95). Patient weekly seizure frequency was reduced over placebo, at week 2 of the evaluation period, by 24.9% (1,120/1,406) for Keppra 1000 mg/day and 38.6% (0,918/1,406) for Keppra 3000 mg/day. The percentage of patients achieving  $\geq 50\%$  seizure reduction from baseline after the 18-week titration and evaluation period was 7.4% for placebo, 37.1% for Keppra 1000 mg/day and 39.6% for Keppra 3000 mg/day.

† Based on observations in clinical studies.

‡  $C_{max}$  of levetiracetam's metabolite (ucb L057) was approximately doubled in presence of probenecid. Renal clearance of ucb L057 decreased by 60% in presence of probenecid.

NEW  
Pr  
**Keppra**<sup>®</sup>  
levetiracetam

CONNECTING EXCELLENT PROFILES IN  
EFFICACY AND TOLERABILITY



# Interferon with Less Interference

## Neutralizing antibodies (NABs) may significantly impact IFN $\beta$ 's ability to bind to receptors and initiate an immunomodulatory process.

### **AVONEX<sup>®</sup> has demonstrated the lowest incidence of NABs.** <sup>£,1,2,3,4</sup>

- ▶ AVONEX treated patients had the lowest risk of becoming persistent NAB-positive; 2% of patients versus 15% and 31% for Rebif<sup>®</sup> (IFN $\beta$ -1a 22  $\mu$ g) and Betaseron<sup>®</sup> (IFN $\beta$ -1b) respectively (Betaseron<sup>®</sup> vs AVONEX p=0.001, Betaseron<sup>®</sup> vs Rebif<sup>®</sup> p=0.19, Rebif<sup>®</sup> vs AVONEX p=0.04, n=125).<sup>2</sup>
- ▶ The majority of NABs usually appear during the first 12 months after initiation of IFN $\beta$  therapy (ranging from 3 to 18 months).<sup>2,5</sup>

### **Once-a-week AVONEX – Efficacy that Lasts**

**37%** reduction in probability of disability progression at 2 years (21.9% vs. 34.9%; p=0.02).<sup>1,5</sup>

**32%** reduction in annual exacerbation rate over 2 years (0.61 vs. 0.90; p=0.002).<sup>\*,5</sup>

**55%** reduction in whole brain atrophy progression in year 2 (-0.233 vs. -0.521; p=0.03).<sup>6</sup>

**89%** reduction in Gd-enhanced lesions in patients with enhancement at baseline (0.11 vs 0.50; p=0.041).<sup>1,7</sup>

AVONEX is indicated for the treatment of relapsing forms of MS.<sup>5</sup> AVONEX is generally well tolerated.<sup>5</sup> The most common side effects associated with treatment are flu-like symptoms (muscle ache [myalgia], fever, chills, and asthenia). AVONEX should be used with caution in patients with depression and in patients with seizure disorders. Patients with cardiac disease should be closely monitored. Routine periodic blood chemistry and hematologic tests are recommended during treatment with AVONEX.



**ONCE-A-WEEK**  
**AVONEX<sup>®</sup>**  
(Interferon beta-1a)  
*IM Injection*

### **EFFICACY THAT LASTS**

As demonstrated in 2 years of clinical trials



£ Comparative clinical significance has not been established.  
<sup>†</sup> Kaplan-Meier methodology. AVONEX n=158, placebo n=143. \* AVONEX n=85, placebo n=87.

© As measured by brain parenchymal fraction, AVONEX n=68, placebo n=72.

† AVONEX n=44, placebo n=44. The exact relationship between MRI findings and clinical status is unknown.

Biogen Canada is a trademark of Biogen, Inc. AVONEX is a registered trademark of Biogen, Inc.

Rebif is a registered trademark of Serono Canada Inc. Betaseron is a registered trademark of Berlex Canada Inc.





▼ CCNS INFORMATION

- Become a member
- Residents
- Meetings & Events
- Canadian Brain & Nerve Health Coalition
- Affiliates & Associates
- Maintenance of Certification
- Canadian Journal of Neurological Sciences
- Links

**Visit the new  
Canadian Congress of Neurological  
Sciences  
website ([www.ccns.org](http://www.ccns.org))**

The CCNS website has a new look and new features. Check out the home page for a new feature on "Pioneers in Canadian Neurology". Visit the site to get the latest information on the annual scientific meeting, and register online. Planning a CME event? Look up the comprehensive Maintenance of Certification section. Not a member? Visit the "Become a Member" section, read about member benefits and download an application form. Are you a resident or Fellow? Visit the "Residents and Fellows" section for information just for you.

▼ MEMBERS' CENTRE

- CME Opportunities
- News & Views
- The CCNS
- CCNS Societies
- Residents
- Canadian Journal of Neurological Sciences

**Login to the Members' Centre Now**

The CCNS website has a new section just for members. Watch for your password in the mail to enter the Members' Centre, which will also provide password access to the *Canadian Journal of Neurological Sciences* (CJNS) online.

On the Members' Centre homepage, test your powers of observation by viewing an image and making a diagnosis. In this section, you will also find opportunities and resources to maintain your MOC credits, including online CME available through the *Canadian Journal of Neurological Sciences*. Discover valuable information about your society such as new society initiatives, meeting minutes, bylaws, etc. Access the News and Views section for news updates and reports from your society's input into committees of the Royal College and the Canadian Medical Association or participate in the Members' Forum, an opportunity for you to express your views.



ARICEPT  
5 years  
OF EXCELLENT EFFICACY

For **living**  
with Alzheimer's disease.



Aricept<sup>®</sup> is indicated for the symptomatic treatment of mild-to-moderate dementia of the Alzheimer's type, and does not change the underlying course of the disease. With appropriate dose escalation, 5 mg/d, 10 mg/d and placebo were shown to have comparable adverse events, the most common being diarrhea, nausea, insomnia, fatigue, vomiting, muscle cramps and anorexia. These are usually mild and transient, resolving with continued treatment without need for dose modification.

Make **Aricept**<sup>\*</sup>  
your standard of care.



\* TM Eisai Co. Ltd., Tokyo, Japan. Pfizer Canada Inc., licensee  
© 2002 Pfizer Canada Inc., Kirkland, Quebec H9J 2M5  
Product Monograph available on request.

[www.alzheimercentre.ca](http://www.alzheimercentre.ca)

Once-a-day  
**Aricept**<sup>\*</sup>  
donepezil HCl 5 & 10 mg tablets



Vincent Van Gogh

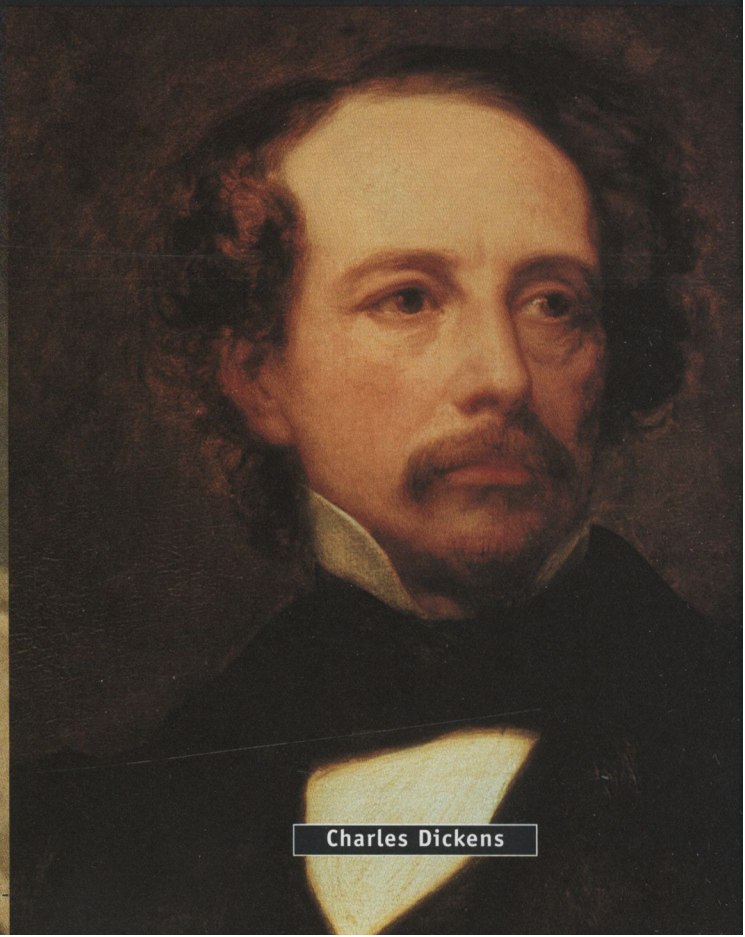


Jeanne d'Arc

**AUPARAVANT, LES PERSONNES ÉPILEPTIQUES DEVAIENT  
SE MONTRER EXCEPTIONNELLES POUR RÉUSSIR.**



Sir Isaac Newton



Charles Dickens

## EFFICACE CONTRE UN GRAND NOMBRE DE TYPES DE CRISES.

- TOPAMAX est efficace contre les crises partielles initiales, les crises tonico-cloniques primaires généralisées et les crises associées au syndrome de Lennox-Gastaut<sup>1</sup>
- Des résultats souhaitables avec absence totale de crises chez 19 % des adultes<sup>†</sup> et 22 % des enfants<sup>†</sup> atteints de crises partielles initiales<sup>2,3</sup>

## AUCUN SIGNE D'EFFETS SECONDAIRES CAPABLES DE MENACER LE PRONOSTIC VITAL.

- Comme pour la plupart des antiépileptiques, les effets secondaires le plus fréquemment signalés relèvent du SNC et sont généralement légers à modérés et de nature passagère<sup>§1</sup>

## IL EST POSSIBLE QUE LES PATIENTS ADULTES SUBISSENT UNE PERTE DE POIDS.

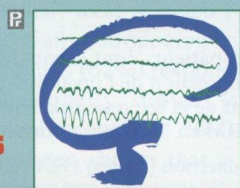
- 73 % ( $n = 52$ ) des patients ont subi une perte de poids de 5,97 lb en moyenne (Analyse provisoire. Durée moyenne de 60 jours)<sup>¶</sup>
- 96 % des enfants traités dans le cadre des essais cliniques pendant au moins un an et ayant subi une perte de poids ont repris du poids au cours de la période d'exécution des essais<sup>\*\*1</sup>

## AUJOURD'HUI, IL Y A TOPAMAX.

## UNE POSOLOGIE BIQUOTIDIENNE POUR TENIR COMPTE DU PATIENT.

- Le traitement par TOPAMAX peut être commencé et ajusté selon la réponse clinique quel que soit le traitement anticonvulsivant en cours
- Les comprimés sont inscrits au formulaire<sup>††</sup>

**MAINTENANT  
OFFERT EN CAPSULES  
À SAUPOUDRER**



**TOPAMAX**<sup>\*</sup>  
topiramate

**MAINTENANT  
INDIQUÉ  
CHEZ L'ENFANT**

## POUR AIDER LES PATIENTS À MIEUX PROFITER DE LA VIE

Comprimés et capsules à saupoudrer <sup>††</sup>TOPAMAX\* (topiramate) : indiqués comme traitement adjuvant chez les patients (adultes et enfants âgés de deux ans ou plus) atteints d'épilepsie dont l'état n'est pas maîtrisé de façon satisfaisante avec le traitement traditionnel. Les renseignements sur l'emploi du topiramate en monothérapie sont encore limités<sup>†</sup>.

<sup>†</sup>Une étude ouverte d'une durée de 20 semaines ( $n = 450$  adultes). Posologie optimale : 300 à 350 mg/jour (moyenne : 288 mg/jour).

<sup>††</sup>Étude ouverte portant sur des enfants ( $n = 72$ ) traités pendant au moins 3 mois. Posologie moyenne : 10 mg/kg/jour.

<sup>§</sup>Manifestations indésirables liées au SNC : Somnolence (30,1 %), étourdissements (28,3 %), ataxie (21,2 %), troubles de la parole (16,8 %), ralentissement psychomoteur (16,8 %), nystagmus (15 %), paresthésie (15 %), nervosité (15,9 %), difficulté à se concentrer/troubles de l'attention (8 %), confusion (9,7 %), dépression (8 %), anorexie (5,3 %), problèmes de langage (6,2 %) et troubles de l'humeur (3,5 %). Une évaluation de 1 446 adultes et 303 enfants a indiqué que ces deux groupes semblent présenter des profils de manifestations indésirables similaires.

<sup>\*\*</sup>Les effets à long terme d'une perte de poids chez les enfants ne sont pas connus.


<sup>††</sup>Médicament à usage limité : Ontario, Nouvelle-Écosse, Nouveau-Brunswick, I.-P.-É. Remboursement intégral : Québec, Saskatchewan, Colombie-Britannique, Alberta, Manitoba.

Veuillez vous reporter aux Renseignements thérapeutiques sur TOPAMAX pour les détails thérapeutiques complets.

RÉFÉRENCES : 1. Monographie des comprimés et capsules à saupoudrer TOPAMAX\* (topiramate), 11 mai 1999. 2. Kamin M, Kraut L, Olson W. Dose optimization of topiramate as add-on therapy in adults with treatment-resistant partial-onset seizures *Neurology* 1999;52 (Suppl 2):A525-526. 3. Glauser TA, Elterman R, Wyllie E et al. Open label topiramate in paediatric partial epilepsy *Epilepsia* 1997;38 (Suppl. 3):94. 4. Rosenfeld WE et al. Topiramate and concomitant weight loss. *Epilepsia* 1997;38 (Suppl 8):98.

**JANSSEN-ORTHO Inc.**  
19 Green Belt Drive, Toronto  
Ontario, Canada M3C 1L9

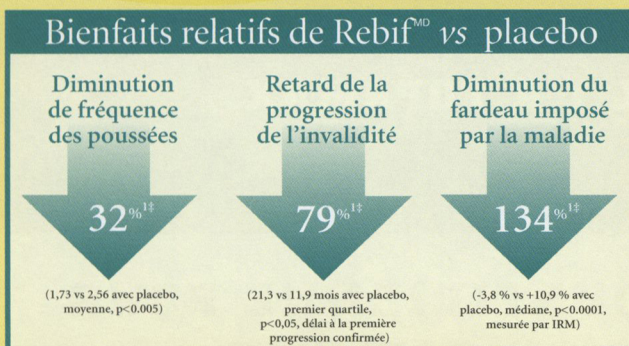
\* Tous droits afférents à une marque de commerce sont utilisés en vertu d'une licence

© 2000 JANSSEN-ORTHO Inc.  TXJA001001FA

Pour documentation voir pages A-31, A-32



Visualisez ce que Rebif<sup>MD</sup> peut faire pour vos patients atteints de SEP<sup>Δ</sup>.



Résultats de la dose de 44 mcg trois fois par semaine après 2 ans<sup>1</sup>.

Rebif est généralement bien toléré. Les effets indésirables les plus fréquents sont souvent traitables et diminuent en fréquence et en gravité avec le temps<sup>2†</sup>.

Rebif modifie l'évolution naturelle de la SEP rémittente<sup>2</sup>.

Rebif<sup>MD</sup> est indiqué pour le traitement de la sclérose en plaques rémittente chez des patients dont la cote EDSS se situe entre 0 et 5,0, afin de réduire le nombre et la gravité des poussées cliniques, de ralentir la progression de l'invalidité physique et de réduire les besoins de corticothérapie et le nombre de séjours à l'hôpital pour le traitement de la sclérose en plaques. Son efficacité a été confirmée au moyen d'évaluations IRM en T<sub>1</sub> marquées au Gd et d'évaluations IRM en T<sub>2</sub> (fardeau imposé par la maladie)<sup>2</sup>.

† Les effets indésirables rapportés le plus souvent sont les suivants : réactions au point d'injection (toutes) (92,4 % vs 38,5 % pour le placebo), infections des voies respiratoires supérieures (74,5 % vs 85,6 % pour le placebo), céphalée (70,1 % vs 62,6 % pour le placebo), syndrome pseudo-grippal (58,7 % vs 51,3 % pour le placebo), fatigue (41,3 % vs 35,8 % pour le placebo) et fièvre (27,7 % vs 15,5 % pour le placebo). Les preuves d'innocuité et d'efficacité sont obtenues de l'étude de 2 ans seulement. Veuillez consulter la monographie du produit pour les renseignements d'ordonnance<sup>2</sup>.

‡ Étude randomisée, à double insu, contrôlée par placebo. Groupe Rebif 44 mcg 3 fois/semaine (n = 184), groupe Rebif 22 mcg 3 fois/semaine (n = 189), groupe placebo (n = 187)<sup>1</sup>.

Δ Le cas hypothétique peut ne pas représenter les résultats obtenus dans la population générale.

Au cours de deux études pivots incluant un total de 628 patients, Rebif a démontré une efficacité significative pour les trois paramètres principaux (poussées, progression de l'invalidité et IRM)<sup>1,2</sup>.

Sa capacité de modifier le cours de la maladie<sup>2</sup> a fait non seulement de Rebif un bon médicament de première ligne pour la SEP rémittente, mais également le médicament dominant de sa catégorie<sup>3</sup>.



POUR DE MULTIPLES RAISONS.