Preface

The 58th Annual Meeting of the Congress of Neurological Surgeons was held at the Orlando Convention Center in Orlando, Florida from September 20–25, 2009. Volume 56 of Clinical Neurosurgery represents the official compilation of the invited scientific manuscripts from the plenary sessions, the Presidential address by Dr. Anthony Asher, and biographic and bibliographic information of the Honored Guest, Dr. William F. Chandler.

Dr. Gerald Rodts, Jr., Annual Meeting Chairman, and Dr. Nathan Selden and Dr. Ali Rezai, Scientific Program Chair and Vice-Chair, respectively, organized an excellent meeting, that was very well attended. The theme of this year’s Annual Meeting was The Community of Neurosurgery: Wisdom from Shared Experience. This meeting was also a joint meeting with the Sociedade Brasileira de Neurocirugia (SBN).

Dr. Anthony Asher eloquently delivered his Presidential address entitled, “Enlightened Learning in a Knowledge Society,” which challenged us all to lead the revolution in medical learning as members of a community of neurosurgery. Honored Guest, Dr. William Chandler, Past President of the CNS and Professor of Neurological Surgery at the University of Michigan, presented his pearls and scholarly wisdom from 30 years of pituitary surgery. He also discussed his philosophy on neurosurgery residency training as well as the regulation of the neurosurgical practice.

For the first year, all manuscripts in this volume of Clinical Neurosurgery were peer reviewed by scientific program committee members (see reviewer section) as well as the Editorial Board. We thank Dr. Michael Apuzzo for his unrelentless support, advice, and friendship throughout this transition. We thank Staff Editor, Veronica Pagan, as well as Jennifer Sollenberger at WoltersKluwer Health, Lippincott Williams and Wilkins, and Michele Lengerman and Laurie L. Behnke from the CNS Headquarters for their hard work, commitment, and dedication to this volume.

We welcome Dr. David Adelson as the new President of the Congress of Neurological Surgeons and look forward to seeing you all in New Orleans.

Gerald A. Grant, M.D.  
Editor-in-Chief  
Duke University

Robert A. Mericle, M.D.  
Associate Editor  
Vanderbilt University
Reviewers

Manish K. Aghi, M.D., Ph.D.
University of California at San Francisco
San Francisco, California

Edward C. Benzel, M.D.
Cleveland Clinic
Cleveland, Ohio

Jeffrey N. Bruce, M.D.
The Neurosurgical Institute
New York, New York

E. Antonio Chiocca, M.D., Ph.D.
The Ohio State University Medical Center
Columbus, Ohio

Curtis A. Dickman, M.D.
Barrow Neurological Institute; St. Josephs Hospital
and Medical Center
Phoenix, Arizona

E. Hunter Dyer, M.D.
Carolina Neurosurgery & Spine Associates
Charlotte, North Carolina

Gerald A. Grant, M.D.
Duke University Medical Center
Durham, North Carolina

John G. Golfinos, M.D.
NYU Medical Center
New York, New York

Patrick J. Kelly, M.D., F.A.C.S.
NYU Medical Center
New York, New York

Mark E. Linskey, M.D.
University of California at Irvine
Orange, California

Russell R. Lonser, M.D.
National Institute of Neurological Disorders and Stroke
Bethesda, Maryland

Dennis J. Maiman, M.D., Ph.D.
University of Wisconsin
Medical College of Wisconsin
Milwaukee, Wisconsin

Robert A. Mericle, M.D.
Vanderbilt University
Nashville, Tennessee
Alfredo Quiñones-Hinojosa, M.D.
Johns Hopkins University
Baltimore, Maryland

James T. Rutka, M.D., Ph.D., F.R.C.S., F.A.C.S.
The Hospital for Sick Children
Toronto, Ontario, Canada

Mick J. Perez-Cruet, M.D.
Michigan Head and Spine Institute
Southfield, Michigan

Mark E. Shaffrey, M.D.
University of Virginia
Charlottesville, Virginia

Ashwini D. Sharan, M.D.
Thomas Jefferson University
Philadelphia, Pennsylvania

Daniel L. Silbergeld, M.D.
University of Washington Med Center
Seattle, Washington

Philip A. Starr, M.D.
University of California at San Francisco
San Francisco, California

Michael Y. Wang, M.D.
University of Miami
Miami, Florida
Honored Guests

1952—Professor Herbert Olivecrona, Stockholm, Sweden
1953—Sir Geoffrey Jefferson, Manchester, England
1954—Dr. Kenneth G. McKenzie, Toronto, Canada
1955—Dr. Carl W. Rand, Los Angeles, California
1956—Dr. Wilder G. Penfield, Montreal, Canada
1957—Dr. Francis C. Grant, Philadelphia, Pennsylvania
1958—Dr. A. Earl Walker, Baltimore, Maryland
1959—Dr. William J. German, New Haven, Connecticut
1960—Dr. Paul C. Bucy, Chicago, Illinois
1961—Professor Eduard A.V. Busch, Copenhagen, Denmark
1963—Dr. James L. Poppen, Boston, Massachusetts
1964—Dr. Edgar A. Kahn, Ann Arbor, Michigan
1965—Dr. James C. White, Boston, Massachusetts
1966—Dr. Hugh A. Krayenbühl, Zurich, Switzerland
1967—Dr. W. James Gardner, Cleveland, Ohio
1968—Professor Normal M. Dott, Zurich, Switzerland
1969—Dr. Wallace B. Hamby, Cleveland, Ohio
1970—Dr. Barnes Woodhall, Durham, North Carolina
1971—Dr. Elisha S. Gurdjian, Detroit, Michigan
1972—Dr. Francis Murphey, Memphis, Tennessee
1973—Dr. Henry G. Schwartz, St. Louis, Missouri
1975—Dr. Guy L. Odom, Durham, North Carolina
1976—Dr. William A. Sweet, Boston, Massachusetts
1977—Dr. Lyle A. French, Minneapolis, Minnesota
1977—Dr. Richard C. Schneider, Ann Arbor, Michigan
1978—Dr. Charles D. Drake, London, Canada
1979—Dr. Frank H. Mayfield, Cincinnati, Ohio
1980—Dr. Eben Alexander, Jr., Winston-Salem, North Carolina
1981—Dr. J. Barber Galbraith, Birmingham, Alabama
1982—Dr. Keiji Sano, Tokyo, Japan
1983—Dr. C. Miller Fisher, Boston, Massachusetts
1984—Dr. Hugo V. Rizzoli, Washington, DC
1985—Dr. Sidney Goldring, St. Louis, Missouri
1986—Dr. M. Gazi Yaşargil, Zurich, Switzerland
1987—Dr. Thomas W. Langfitt, Philadelphia, Pennsylvania
1988—Professor Lindsay Symon, London, England
1989—Dr. Thoralf M. Sundt, Jr., Rochester, Minnesota
1990—Dr. Charles B. Wilson, San Francisco, California
1991—Dr. Bennett M. Stein, New York, New York
1992—Dr. Robert G. Ojemann, Boston, Massachusetts
1993—Dr. Albert L. Rhoton, Jr., Gainesville, Florida
1994—Dr. Robert F. Spetzler, Phoenix, Arizona
1995—Dr. John A. Jane, Charlottesville, Virginia
1996—Dr. Peter J. Jannetta, Pittsburgh, Pennsylvania
1997—Dr. Nicholas T. Zervas, Boston, Massachusetts
1998—Dr. John M. Tew, Cincinnati, Ohio
1999—Dr. Duke S. Samson, Dallas, Texas
2000—Dr. Edward R. Laws, Charlottesville, Virginia
2001—Dr. Michael L.J. Apuzzo, Los Angeles, California
2002—Dr. Volker K.H. Sonntag, Phoenix, Arizona
2003—Dr. Julian T. Hoff, Ann Arbor, Michigan
2004—Dr. Arnold H. Menezes, Iowa City, Iowa
2005—Dr. Roberto C. Heros, Miami, Florida
2006—Dr. Peter M. Black, Boston, Massachusetts
2007—Dr. L. Dade Lunsford, Pittsburgh, Pennsylvania
2008—Dr. William F. Chandler, Ann Arbor, Michigan
Officers of the Congress of Neurological Surgeons 2008

ANTHONY L. ASHER, M.D., F.A.C.S.
President
P. DAVID ADELSON, M.D., F.A.C.S., F.A.A.P.
President-Elect
CHRISTOPHER C. GETCH, M.D.
Vice President
CHRISTOPHER E. WOLFLA, M.D.
Secretary
JOEL D. MACDONALD, M.D.
Treasurer
DOUGLAS S. KONDZIOLKA, M.D., M.Sc., F.R.S.C., F.A.C.S.
Past President

EXECUTIVE COMMITTEE

SALEEM I. ABDULRAUF, M.D., F.A.C.S.  GANESH RAO, M.D.
WILLIAM E. BINGAMAN, JR., M.D.  DANIEL K. RESNICK, M.D.
NICHOLAS M. BOULIS, M.D.  ALI R. REZAI, M.D.
C. MICHAEL CAWLEY III, M.D.  GERALD E. RODTS, JR., M.D.
E. HUNTER DYER, M.D.  ALAN M.Scarow, M.D.
ROBERT M. FRIEDLANDER, M.D.  NATHAN R. SELDEN, M.D., Ph.D., F.A.C.S., F.A.A.P.
ELAD I. LEVY, M.D.  ASHWINI D. SHARAN, M.D.
MARK E. LINSKEY, M.D.  JASON P. SKEEHER, M.D., Ph.D.
ZACHARY N. LITVACK, M.D.  MICHAEL P. STEINMETZ, M.D.
CHARLES Y. LIU, M.D., Ph.D.  JAMIE SUE ULLMAN, M.D., F.A.C.S.
RUSSELL R. LONSER, M.D.
Congress of Neurological Surgeons
Past Presidents

1951—Elmer E. Schultz, M.D.
1952—Hendrik J. Svien, M.D.
1953—Nathaniel R. Hollister, M.D.
1954—James R. Gay, M.D.
1955—Donald B. Sweeney, M.D.
1956—Bland W. Cannon, M.D.
1957—Frederick C. Rehfeldt, M.D.
1958—Raymond K. Thompson, M.D.
1959—Philip D. Gordy, M.D.
1960—Thomas M. Marshall, M.D.
1961—Martin P. Sayers, M.D.
1962—Richard L. DeSaussure, M.D.
1963—A. Roy Tyrer, Jr., M.D.
1964—Edward C. Weiford, M.D.
1965—Gordon van den Noort, M.D.
1966—William H. Mosberg, Jr., M.D.
1967—John R. Russell, M.D.
1968—John Shillito, Jr., M.D.
1969—Paul C. Sharkey, M.D.
1970—John M. Thompson, M.D.
1971—Donald F. Dohn, M.D.
1972—John N. Meagher, M.D.
1973—Bernard S. Patrick, M.D.
1974—George T. Tindall, M.D.
1975—James T. Robertson, M.D.
1976—Robert G. Ojemann, M.D.
1977—Bruce F. Sorensen, M.D.
1978—Albert L. Rhoton, Jr., M.D.
1979—David L. Kelly, Jr., M.D.
1980—Robert H. Wilkins, M.D.
1981—J. Fletcher Lee, M.D.
1982—Donald H. Stewart, Jr., M.D.
1983—John M. Tew, Jr., M.D.
1984—Edward R. Laws, Jr., M.D.
1985—Robert A. Ratcheson, M.D.
1986—Joseph C. Maroon, M.D.
1987—Donald O. Quest, M.D.
1988—Christopher B. Shields, M.D.
1989—J. Michael McWhorter, M.D.
1990—Hal L. Hankinson, M.D.
1991—Michael Salcman, M.D.
1992—William F. Chandler, M.D.
1993—Arthur L. Day, M.D.
1994—Richard Roski, M.D.
1995—Ralph G. Dacey, Jr., M.D.
1996—Stephen J. Haines, M.D.
1997—Marc R. Mayberg, M.D.
1998—William A. Friedman, M.D.
1999—H. Hunt Batjer, M.D.
2000—Daniel L. Barrow, M.D.
2001—Issam A. Awad, M.D.
2002—Stephen M. Papadopoulos, M.D.
2003—Mark N. Hadley, M.D.
2004—Vincent C. Traynelis, M.D.
2005—Nelson M. Oyesiku, M.D.
2006—Richard G. Ellenbogen, M.D.
2007—Douglas S. Kondziolka, M.D.
2008—Anthony L. Asher, M.D.
<table>
<thead>
<tr>
<th>Volume</th>
<th>Date</th>
<th>Editor-in-Chief</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1953</td>
<td>Raymond K. Thompson, M.D.</td>
</tr>
<tr>
<td>2</td>
<td>1954</td>
<td>Raymond K. Thompson, M.D. &amp; Ira J. Jackson, M.D.</td>
</tr>
<tr>
<td>3</td>
<td>1955</td>
<td>Raymond K. Thompson, M.D. &amp; Ira J. Jackson, M.D.</td>
</tr>
<tr>
<td>4</td>
<td>1956</td>
<td>Ira J. Jackson, M.D.</td>
</tr>
<tr>
<td>5</td>
<td>1957</td>
<td>Robert G. Fisher, M.D.</td>
</tr>
<tr>
<td>6</td>
<td>1958</td>
<td>Robert G. Fisher, M.D.</td>
</tr>
<tr>
<td>7</td>
<td>1959</td>
<td>Robert G. Fisher, M.D.</td>
</tr>
<tr>
<td>8</td>
<td>1960</td>
<td>William H. Mosberg, Jr., M.D.</td>
</tr>
<tr>
<td>9</td>
<td>1961</td>
<td>William H. Mosberg, Jr., M.D.</td>
</tr>
<tr>
<td>10</td>
<td>1962</td>
<td>William H. Mosberg, Jr., M.D.</td>
</tr>
<tr>
<td>11</td>
<td>1963</td>
<td>John Shillito, Jr., M.D. &amp; William H. Mosberg, Jr., M.D.</td>
</tr>
<tr>
<td>12</td>
<td>1964</td>
<td>John Shillito, Jr., M.D.</td>
</tr>
<tr>
<td>13</td>
<td>1965</td>
<td>John Shillito, Jr., M.D.</td>
</tr>
<tr>
<td>14</td>
<td>1966</td>
<td>Robert G. Ojemann, M.D. &amp; John Shillito, Jr., M.D.</td>
</tr>
<tr>
<td>15</td>
<td>1967</td>
<td>Robert G. Ojemann, M.D.</td>
</tr>
<tr>
<td>16</td>
<td>1968</td>
<td>Robert G. Ojemann, M.D.</td>
</tr>
<tr>
<td>17</td>
<td>1969</td>
<td>Robert G. Ojemann, M.D.</td>
</tr>
<tr>
<td>18</td>
<td>1970</td>
<td>George T. Tindall, M.D.</td>
</tr>
<tr>
<td>19</td>
<td>1971</td>
<td>George T. Tindall, M.D.</td>
</tr>
<tr>
<td>20</td>
<td>1972</td>
<td>Robert H. Wilkins, M.D.</td>
</tr>
<tr>
<td>21</td>
<td>1973</td>
<td>Robert H. Wilkins, M.D.</td>
</tr>
<tr>
<td>22</td>
<td>1974</td>
<td>Robert H. Wilkins, M.D.</td>
</tr>
<tr>
<td>23</td>
<td>1975</td>
<td>Ellis B. Keener, M.D.</td>
</tr>
<tr>
<td>24</td>
<td>1976</td>
<td>Ellis B. Keener, M.D.</td>
</tr>
<tr>
<td>25</td>
<td>1977</td>
<td>Ellis B. Keener, M.D.</td>
</tr>
<tr>
<td>26</td>
<td>1978</td>
<td>Peter W. Carmel, M.D.</td>
</tr>
<tr>
<td>27</td>
<td>1979</td>
<td>Peter W. Carmel, M.D.</td>
</tr>
<tr>
<td>28</td>
<td>1980</td>
<td>Peter W. Carmel, M.D.</td>
</tr>
<tr>
<td>29</td>
<td>1981</td>
<td>Martin H. Weiss, M.D.</td>
</tr>
<tr>
<td>30</td>
<td>1982</td>
<td>Martin H. Weiss, M.D.</td>
</tr>
<tr>
<td>31</td>
<td>1983</td>
<td>Martin H. Weiss, M.D.</td>
</tr>
<tr>
<td>32</td>
<td>1984</td>
<td>John R. Little, M.D.</td>
</tr>
<tr>
<td>33</td>
<td>1985</td>
<td>John R. Little, M.D.</td>
</tr>
<tr>
<td>34</td>
<td>1986</td>
<td>John R. Little, M.D.</td>
</tr>
<tr>
<td>35</td>
<td>1987</td>
<td>Peter McL. Black, M.D., Ph.D.</td>
</tr>
<tr>
<td>36</td>
<td>1988</td>
<td>Peter McL. Black, M.D., Ph.D.</td>
</tr>
<tr>
<td>37</td>
<td>1989</td>
<td>Peter McL. Black, M.D., Ph.D.</td>
</tr>
<tr>
<td>38</td>
<td>1990</td>
<td>Warren R. Selman, M.D.</td>
</tr>
<tr>
<td>39</td>
<td>1991</td>
<td>Warren R. Selman, M.D.</td>
</tr>
<tr>
<td>40</td>
<td>1992</td>
<td>Warren R. Selman, M.D.</td>
</tr>
<tr>
<td>41</td>
<td>1993</td>
<td>Christopher M. Loftus, M.D.</td>
</tr>
<tr>
<td>42</td>
<td>1994</td>
<td>Christopher M. Loftus, M.D.</td>
</tr>
<tr>
<td>43</td>
<td>1995</td>
<td>Christopher M. Loftus, M.D.</td>
</tr>
<tr>
<td>44</td>
<td>1996</td>
<td>M. Sean Grady, M.D.</td>
</tr>
<tr>
<td>45</td>
<td>1997</td>
<td>M. Sean Grady, M.D.</td>
</tr>
<tr>
<td>46</td>
<td>1998</td>
<td>M. Sean Grady, M.D.</td>
</tr>
<tr>
<td>47</td>
<td>1999</td>
<td>Matthew A. Howard III, M.D.</td>
</tr>
<tr>
<td>48</td>
<td>2000</td>
<td>Matthew A. Howard III, M.D.</td>
</tr>
<tr>
<td>49</td>
<td>2001</td>
<td>Matthew A. Howard III, M.D.</td>
</tr>
<tr>
<td>50</td>
<td>2002</td>
<td>Guy M. McKhann II, M.D.</td>
</tr>
<tr>
<td>51</td>
<td>2003</td>
<td>Guy M. McKhann II, M.D.</td>
</tr>
<tr>
<td>52</td>
<td>2004</td>
<td>Guy M. McKhann II, M.D.</td>
</tr>
<tr>
<td>53</td>
<td>2005</td>
<td>Guy M. McKhann II, M.D. &amp; Gerald A. Grant, M.D.</td>
</tr>
<tr>
<td>54</td>
<td>2006</td>
<td>Gerald A. Grant, M.D.</td>
</tr>
<tr>
<td>55</td>
<td>2007</td>
<td>Gerald A. Grant, M.D.</td>
</tr>
<tr>
<td>56</td>
<td>2008</td>
<td>Gerald A. Grant, M.D.</td>
</tr>
</tbody>
</table>
Contributors

Mohamed Abou-Ghazal, M.D.
Department of Neurosurgery
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Martin Adler, Ph.D.
Center for Substance Abuse Research
Temple University School of Medicine
Pittsburgh, Pennsylvania

Deepak Agrawal, M.B.B.S., M.S., M.Ch.
Department of Neurosurgery and Gamma-Knife
All India Institute of Medical Sciences
New Delhi, India

Peter Angelos, M.D., Ph.D.
Department of Surgery
The University of Chicago
Chicago, Illinois

Gary E. Archer, Ph.D.
Division of Neurosurgery
Duke University Medical Center
Durham, North Carolina

Anthony L. Asher, M.D., F.A.C.S.
Carolina NeuroSurgery & Spine
Charlotte, North Carolina

Frederick G. Barker II, M.D.
Department of Surgery (Neurosurgery)
Harvard Medical School
Boston, Massachusetts

Darrie E. Baty, M.D.
Department of Neurosurgery
Temple University Hospital
Pittsburgh, Pennsylvania

James R. Bean, M.D.
Neurosurgical Associates
Lexington, Kentucky

Ian Beauprie, M.D.
Department of Anesthesia
Dalhousie University
Halifax, Nova Scotia, Canada

Edward C. Benzel, M.D.
Department of Neurosurgery
Center for Spine Health
Cleveland Clinic
Cleveland, Ohio
Nicholas Boulis, M.D.
Department of Neurosurgery
Emory University School of Medicine
Atlanta, Georgia

Jeffrey Alan Brown, M.D.
Neurological Surgery, P.C.
Great Neck, New York

William F. Chandler, M.D.
University of Michigan Health System
Ann Arbor, Michigan

Clark C. Chen, M.D., Ph.D.
Department of Radiation Oncology
Division of Neurosurgery
Dana Farber Cancer Institute
Boston, Massachusetts

Alan D’Andrea, M.D.
Department of Radiation Oncology
Dana Farber Cancer Institute
Boston, Massachusetts

Sabrina C. Desbordes, Ph.D.
Developmental Biology Program
Sloan-Kettering Institute for Cancer Research
New York, New York

Evandro de Oliveira, M.D., Ph.D.
Neurological Surgery Department
University of Campinas
Campinas, Brazil
Institute of Neurological Sciences
São Paulo, Brazil

M. Sam Eljamel, M.B.B.S., M.D., F.R.C.S.
Department of Neurosurgery
Ninewells Hospital and Medical School
Dundee, Scotland

Gregory N. Fuller, M.D., Ph.D.
Department of Pathology
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Doina Ganea, Ph.D.
Department of Microbiology and Immunology
Temple University School of Medicine
Pittsburgh, Pennsylvania
CONTRIBUTORS

Rene Garcia, M.D.
Division of Neurosurgery
Department of Surgery
Dalhousie University
Halifax, Nova Scotia, Canada

John P. Gaughan, Ph.D.
Department of Physiology
Temple University School of Medicine
Pittsburgh, Pennsylvania

Michael W. Groff, M.D.
Harvard Medical School
Boston, Massachusetts

Neil Harrison, Ph.D.
Departments of Pharmacology and Anesthesiology
Weill Medical College of Cornell University
New York Presbyterian Hospital
New York, New York

Amy Beth Heimberger, M.D.
Department of Neurosurgery
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Joshua E. Heller, M.D.
Department of Neurosurgery
Temple University Hospital
Pittsburgh, Pennsylvania

Nobuyoshi Hiraoka, M.D., Ph.D.
Pathology Division
National Cancer Center Research Institute
Tokyo, Japan

Lauren Hu, M.S.
Department of Radiation Oncology
Dana Farber Cancer Institute
Boston, Massachusetts

Jack I. Jallo, M.D., Ph.D., F.A.C.S.
Department of Neurosurgery
Temple University School of Medicine
Pittsburgh, Pennsylvania

Fan Jia, Ph.D.
Departments of Pharmacology and Anesthesiology
Weill Medical College of Cornell University
New York Presbyterian Hospital
New York, New York
Andrei Fernandes Joaquim, M.D.
Neurological Surgery Department
University of Campinas
Campinas, Brazil

Santosh Kesari, M.D., Ph.D
Department of Medical Oncology
Dana Farber Cancer Institute
Boston, Massachusetts

Ling-Yuan Kong, Ph.D.
Department of Neurosurgery
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Andrew Kung, M.D., Ph.D.
Department of Medical Oncology
Dana Farber Cancer Institute
Boston, Massachusetts

Fabien Lafaille, M.S.
Developmental Biology Program
Sloan-Kettering Institute for Cancer Research
New York, New York

Hyojin Lee, Ph.D.
Developmental Biology Program
Sloan-Kettering Institute for Cancer Research
New York, New York

Hongbo Li, M.D.
Department of Physiology
Temple University School of Medicine
Pittsburgh, Pennsylvania

Christopher M. Loftus, M.D., F.A.C.S.
Department of Neurosurgery
Temple University School of Medicine
Pittsburgh, Pennsylvania

Richard E. Mayer, Ph.D.
Department of Psychology
University of California, Santa Barbara
Santa Barbara, California

Philippe Magown, M.D.C.M.
Division of Neurosurgery
Department of Surgery
Dalhousie University
Halifax, Nova Scotia, Canada
Ivar M. Mendez, M.D., Ph.D.
Division of Neurosurgery
Department of Surgery
Dalhousie University
Halifax, Nova Scotia, Canada

Kimberly Ng, B.S.
Department of Radiation Oncology
Dana Farber Cancer Institute
Boston, Massachusetts

Masayuki Nitta, M.D., Ph.D.
Department of Radiation Oncology
Dana Farber Cancer Institute
Boston, Massachusetts

Dimitris G. Placantonakis, M.D., Ph.D.
Department of Neurosurgery
Sloan-Kettering Institute for Cancer Research
Department of Neurological Surgery
Weill Medical College of Cornell University
New York Presbyterian Hospital
New York, New York

Waldemar Priebe, Ph.D.
Experimental Therapeutics
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Wei Qiao, M.S.
Division of Quantitative Sciences
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Bethwel Raore, M.D.
Department of Neurosurgery
Emory University School of Medicine
Atlanta, Georgia

Chantal Reina-Ortiz
Department of Neurosurgery
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Jonathan Riley, M.D.
Department of Neurosurgery
Emory University School of Medicine
Atlanta, Georgia

John H. Sampson, M.D., Ph.D., M.H.Sc.
Division of Neurosurgery
Duke University Medical Center
Durham, North Carolina
Scott Santos, B.A.
Department of Neurological Surgery
Keck School of Medicine
University of Southern California
Los Angeles, California

Raymond Sawaya, M.D.
Department of Neurosurgery
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Robert J. Schmittling, B.S.
Division of Neurosurgery
Duke University Medical Center
Durham, North Carolina

Nicholas D. Socci, Ph.D.
Computational Biology Center
Sloan-Kettering Institute for Cancer Research
New York, New York

Paul Steinbok, M.B.B.S., M.Sc., F.R.C.S.C.
Division of Pediatric Neurosurgery
British Columbia Children's Hospital
Vancouver, British Columbia, Canada

Lorenz Studer, M.D.
Department of Neurosurgery
Developmental Biology Program
Sloan-Kettering Institute for Cancer Research
New York, New York

Viviane S. Tabar, M.D.
Department of Neurosurgery
Sloan-Kettering Institute for Cancer Research
New York, New York

Mark J. Tomishima, Ph.D.
Developmental Biology Program
SKI Stem Cell Research Facility
Sloan-Kettering Institute for Cancer Research
New York, New York

Ronald F. Tuma, Ph.D.
Department of Physiology
Temple University School of Medicine
Pittsburgh, Pennsylvania

Agnes Viale, Ph.D.
Molecular Biology Program
Genomics Core Laboratory
Sloan-Kettering Institute for Cancer Research
New York, New York
Michael A. Vogelbaum, M.D., Ph.D., F.A.C.S.
Brain Tumor and Neuro-Oncology Center
Department of Neurosurgery
Cleveland Clinic/Neurological Institute
Cleveland, Ohio

Jun Wei, Ph.D.
Department of Neurosurgery
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

David S. Yang, B.S.
Department of Neurosurgery
The University of Texas M.D. Anderson Cancer Center
Houston, Texas

Ming Zhang, M.D., Ph.D.
Department of Physiology
Temple University School of Medicine
Pittsburgh, Pennsylvania
Dr. William Chandler is the Richard C. Schneider Professor of Neurological Surgery at the University of Michigan. He is Codirector of the Multidisciplinary Pituitary and Neuroendocrine Clinic at the University of Michigan and Professor of Internal Medicine. Dr. Chandler has had a long-standing clinical and research interest in disorders of the pituitary. Along with these interests, he has maintained interest and expertise in cerebrovascular neurosurgery, brain tumor surgery, and general neurosurgery.

In 1980, Dr. Chandler and colleagues published one of the landmark articles on the use of intraoperative ultrasonography for brain tumor localization. Subsequent articles detailed the use of intraoperative ultrasonography for spinal cord tumors and intracranial vascular lesions. He was involved in the early work with intra-arterial radiosensitization for the treatment of malignant brain tumors. He was among the first surgeons at the University of Michigan to perform the microvascular bypass procedure and reported several innovative uses of these techniques. Dr. Chandler has worked closely with basic scientists to study the pathophysiology of pituitary tumors, including work with in situ hybridization and regulation of gene expression. He has worked with endocrinology colleagues to develop and test new drugs for the treatment of acromegaly.

A native of southeast Michigan, Dr. Chandler received his B.A. degree from Northwestern University. He received his medical degree from the University of Michigan and is member of AOA. He completed his internship and neurosurgery residency training at the University of Michigan. He received the VanWagenen Fellowship from the American Association of Neurological Surgeons (AANS) in 1977 and spent 6 months at the Karolinska Institute in Stockholm, Sweden. He worked there with Dr. Nicolas Zwetnow doing research in the field of elevated intracranial pressure. During this time, he also traveled to Paris to observe pituitary surgery by Dr. Gerard Guiot. He returned from Sweden to become an assistant professor of neurosurgery at Louisiana State University, with Dr. David Kline as the chairman. In 1979, he returned to the University of Michigan and rose through the ranks to become professor of neurosurgery. In 2003, because of his continued efforts in training fellows in endocrinology, Dr. Chandler was appointed professor of internal medicine. He did a sabbatical in 1986 with Dr. Alex Landoldt in Zurich, Switzerland, and also had the opportunity to work with Professor Yasargil.

In 1996, Dr. Chandler, along with Dr. Ariel Barkan from the Department of Endocrinology, started the Multidisciplinary Pituitary and Neuroendocrine Clinic. This clinic has been successful in attracting patients with a variety of pituitary-related diseases. The clinic has also served as a valuable opportunity for teaching both neurosurgery residents and endocrinology fellows the intricacies of pituitary disorders. Dr. Chandler has operated on nearly 2,000 patients with pituitary and parasellar tumors. He has participated in numerous practical courses on pituitary surgery at the major national neurosurgery meetings. Dr. Chandler has authored more than 130 peer-reviewed publications, three books, and numerous book chapters.

Dr. Chandler is very proudly a past president of the Congress of Neurological Surgeons (CNS). He also served as Annual Meeting Chairman and Scientific Program Chairman for the CNS. He was on the Board of Directors of the AANS and was Annual Meeting Chairman and Scientific Program Chairman for the AANS. Dr. Chandler was Chairman of the AANS-CNS Joint Section on Tumors. He was a director on the American Board of Neurological Surgery and served as chairman of the board in 2006. He served as chairman of the written examinations committee for the Board. He continues to serve on the Board of Directors of the American Board of Medical Specialties, representing the American Board of Neurological Surgery. He was Vice President and Scientific Program Chairman for the American Academy of Neurological Surgery. Dr. Chandler was President of the Michigan Association of Neurological Surgery. He is a member of the Society of Neurological Surgeons and of the International Society of Pituitary Surgeons. He is a fellow of the American College of Surgeons.

Dr. Chandler has been very happily married to Susan Chandler for 38 years. They have two sons, a daughter-in-law, and a beautiful granddaughter. Dr. Chandler has enjoyed family ski trips over the years and plays tennis all year round.
Selected Bibliography for William F. Chandler, M.D.

**PUBLICATIONS**


64. Jin L, Chandler WF, Smart JB, England BG, Lloyd RV: Differentiation of human pituitary
adenomas determined the pattern of chromogranin/secretogranin mRNA expression. 


103. Todd MM, Hindman BJ, Clarke WR, Torner JC, Intraoperative Hypothermia for Aneurysm

**BOOKS**


**CHAPTERS IN BOOKS**


