

## CURRICULUM VITAE

NAME Adrian Raine

WORK ADDRESS Department of Criminology,  
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WEB <http://www.crim.upenn.edu/faculty/profiles/raine.html>

DATE/PLACE OF BIRTH January 27, 1954 / Darlington, England.

AGE 59

MARITAL STATUS Married with two children.

NATIONALITY British (permanent resident of the U.S.)

PRESENT POSITIONS 2007 - present: **University Professor** and the **Richard Perry Professor** of Criminology, Psychiatry, and Psychology, University of Pennsylvania.

1986 - present: **Director**, Joint Child Health Project, Mauritius.

2007- present. **Member**, Center for Cognitive Neuroscience, University of Pennsylvania.

2009- present. **Member**, Center for Neuroscience & Society, University of Pennsylvania.

2009 - present. **Core Member**, Center for Cognitive Neuroscience, University of Pennsylvania.

- PREVIOUS POSITIONS
- 1972 - 1974: **Trainee Accountant**, British Airways, Heathrow Airport, London.
- 1977 - 1980: **Postgraduate Research Student** (Social Sciences Research Studentship, University of York).
- 1981 - 1984: **Senior Psychologist** (Psychologist 1981-2, Hull Prison; Senior Psychologist 1982-4, Frankland Prison), Prison Department, Home Office, England.
- 1980 - 1984: **Course Tutor** in Social Psychology, Open University, England.
- 1984 - 1987: **University Lecturer** in Behavioral Sciences (tenured 1987) Dept. of Psychiatry, University of Nottingham, England.
- 1987 - 1990: **Assistant Professor** (tenure-track), Dept. of Psychology, University of Southern California.
- 1990 - 1994: **Associate Professor** (tenured), Dept. of Psychology, University of Southern California.
- 1990 - 1993: **Associate Chair** (tenured), Dept. of Psychology, University of Southern California.
- 1994 - 2007: **Professor** (tenured), Department of Psychology, University of Southern California.
- 1999 - 2007: **Robert Grandford Wright Professor** in Psychology and Neuroscience Programs, University of Southern California.
- 2008 - 2011: **Chair**, Department of Criminology, University of Pennsylvania.

- EDUCATION
- 1977: **BA** (Hons.) Experimental Psychology, Jesus College, Oxford University.
- 1982: **MA** Experimental Psychology, Jesus College, Oxford University.

## AWARDS/HONORS

- 1982: **D.Phil.** Psychology, University of York, England.  
Thesis: "Socialization, psychometrics, and psychophysiology".  
Supervisor: Professor Peter H. Venables.
- 1980: Young Psychologist of the Year (British Psychological Society).
- 1982: K.M. Stott Prize ("Distinguished Performance in Postgraduate Research"). University of York.
- 1989: Young Scientist Award, Biennial Winter Workshop on Schizophrenia.
- 1992: Research Mentorship Award ("outstanding faculty-student research team"; Phi Kappa Phi, U.S.C.
- 1993: Distinguished Research in Psychology (Dept. of Psychology, U.S.C.)
- 1993: Research Scientist Development Award, NIMH.
- 1997: Distinguished Research in Psychology (Dept. of Psychology, U.S.C.)
- 1998: Joseph Zubin Memorial Award (awarded by the New York State Psychiatric Institute and Western Psychiatric Institute and Clinic for distinguished and creative early contributions to psychopathology research).
- 1999: Independent Scientist Award, NIMH.
- 1999: Robert Grandford Wright Professorship, University of Southern California.
- 2003: Associates Award for Creativity in Research, University of Southern California
- 2006: Fellow: Academy of Experimental Criminology
- 2007: Richard Perry University Professorship, University of Pennsylvania.

2008: Hewlett Award for Innovation in International Teaching

2009: Fellow, American Psychological Society.

2011: Vice-President, Academy of Experimental Criminology.

2013: President, Academy of Experimental Criminology.

2014: The Athenaeum Literary Award (book award for *The Anatomy of Violence*).

SOCIETY MEMBERSHIP American Psychological Association.  
American Psychological Society  
Academy of Experimental Criminology  
American Society of Criminology  
International Neuroethics Society  
Society for Biological Psychiatry

COURSES TAUGHT Criminal Behavior  
Biosocial Criminology  
Abnormal Psychology  
Violence: A clinical neuroscience approach  
Psychological Assessment: Clinical  
Social Psychology  
Behavioral Sciences (Biological, Developmental, Social, and Health Psychology)

RESEARCH INTERESTS Neurocriminology; biosocial risk factors for antisocial, violent, and psychopathic behavior; nutritional and cognitive treatment programs for aggressive behavior; reactive and proactive aggression; schizotypal personality; developmental psychopathology; neuroethics; brain imaging; psychophysiology; behavioral and molecular genetics; neurocognition;

FUNDED RESEARCH (Total costs \$30,303,321)  
GRANTS

1986-1988: Structural and functional characteristics of the corpus callosum in schizophrenics. Medical Research Council (G8607450N). Principal Investigator. \$35,536.

- 1987-1988: Frontal lobe area and callosal thickness in schizophrenics. Biomedical Research. Principal Investigator \$5,000.
- 1988-1989: Delinquency in Mauritian children. Faculty Research and Innovation Fund, U.S.C. Principal Investigator. \$10,000.
- 1989-1990: Frontal lobe dysfunction in schizotypal personality disorder. Biomedical Research. Principal Investigator. \$5,000.
- 1991-1994: Psychophysiology of violent and antisocial behavior (R01 MH46435-02). NIMH. Principal Investigator. \$553,562.
- 1991-1992: Brain functioning in homicide cases with and without head injury. Southern California Injury Prevention Research Center. Principal Investigator. \$9,478.
- 1991-1992: Psychophysiology of violent behavior and long-term community rehabilitation of schizophrenia: Small instrumentation program application. Alcohol and Drug Abuse Mental Health Administration. Principal Investigator. \$8,390.
- 1992-1993: Event-related potentials and schizotypal personality. UCLA Clinical Research Center for Schizophrenia. Principal Investigator. \$3,128.
- 1992-1993: Schizotypal personality. NATO. Advanced Research Workshop. Director. \$24,000.
- 1993-1995: Autonomic predictors of alcohol abuse. (5 R01 AA08876-02) NIAAA. Principal Investigator. \$354,874
- 1993-1998: Violence: Integrating social and physiological factors (5 K02 MH01114-02.) NIMH. PI. \$391,644
- 1994-1995: Pre-frontal deficits in schizotypal personality disorder (1 RO3 MH50940-01A2). NIMH.

- Principal Investigator. \$162,786.
- 1994-1998: Social and physiological factors for violence (1 RO1 MH51091-01A1) NIMH. Principal Investigator. \$1,597,991
- 1995-1996: Biosocial bases of violence. NATO. Director. \$79,863
- 1995-1997: Childhood predictors of alcoholism and violence. (1 RO1 AA10206) NIAAA Principal Investigator. \$746,837.
- 1999-2003: Childhood predictors of alcoholism and violence (competing continuation) (1 RO1 AA10206) NIAAA Principal Investigator. \$2,186,872.
- 1999-2004: Violence: Integrating social and physiological factors (2 K02 MH01114-06.) NIMH. Principal Investigator. \$545,861.
- 2000-2005: Risk factors for antisocial behavior. NIMH (5 RO1 MH58354) Co-Investigator (PI: Laura Baker). \$2,595,779.
- 2000-2001: Schizotypal personality. NATO. Advanced Research Workshop. Director. \$25,600.
- 2001-2002: Brain deficits in violent schizophrenics. U.S.C. Zumberge Interdisciplinary Research Grant. Principal Investigator. \$49,560.
- 2001-2002: Biosocial bases of violence. U.S.C. Undergraduate Research Initiative. Principal Investigator. \$10,000
- 2001-2006. Intergenerational transmission of antisocial behavior. NICHD & NIMH (1 RO1 HD42259) Principal Investigator. \$3,116,512.
- 2004: Crime and schizophrenia: Causes and cures. Borchard Foundation, CA. Conference. Director. \$25,000.
- 2004-2008: Acquisition of an fMRI basic research imaging

system at the University of Southern California. Major Research Instrumentation Grant, NSF. Co-Investigator. (PI: Irving Biederman) \$1,772,149.

2006-2011: Risk factors for antisocial behavior. NIMH. Co-Investigator (PI: Laura Baker). \$4,022,604.

2008-2012: Biosocial Prediction and Intervention on Childhood Aggression. Principal Investigator. Pennsylvania Department of Health. \$3,941,025

2008-2011: A nutritional and social skills intervention on conduct disorder and hyperactivity. National Medical Research Council, Singapore. Co-Investigator (PI: Daniel Fung). \$647,693 (SGD \$889,535)

2009-2011 Omega-3 supplementation to reduce antisocial and aggressive behavior in community children: A randomized, placebo-controlled, double-blind trial. Pharmalogica, Oslo, Norway. PI. \$79,440.

2010-2015: "Lead exposure, externalizing behavior, and neurobiological mediating factors". (1R01ES018858). Co-Investigator (PI: Jianghong Liu). NIEHS. \$1,913,020.

2010-2015: "Intergenerational transmission of alcohol involvement". (1R01 AA18179). Co-Investigator (PI: Susan Luczak). NIAAA. \$3,204,756.

2010-2011: "Effectiveness of an omega-3 supplementation on antisocial and violent behavior in young offenders: a randomized, controlled trial. Singapore Prison Service, PI. \$67,128.

2011-2013: "Long-term reduction of aggressive behavior in children and adolescents using omega-3 supplementation: A randomized, placebo-controlled trial". Harry Frank Guggenheim Foundation, PI, \$37,120.

2012-2017: "Mechanisms of Comorbidity and Specificity for

Generalized Anxiety and Depression". (1 R01 MH094425-01). Co-Investigator (PI: Ayelet Ruscio). NIMH. \$2,075,113.

## GRANTS UNDER REVIEW

None currently.

## FUNDED TRAINING GRANTS (total direct costs: \$756,615)

1991-1992: NIMH. Faculty mentor for Angela Scarpa. NRSA (1 F31 MH10243-01). Psychophysiological characteristics of child behavior problems. \$13,008.

1993-1994: NIMH. Faculty mentor for Todd Lencz. NRSA (1 F31 MH10463-01). Psychophysiological and behavioral antecedents of schizotypy. \$13,008.

1994-1995: NIMH. Faculty mentor to Deana Benishay. NRSA. (1F31 MH10845-01). Longitudinal biosocial interactions in schizotypy. \$11,800.

1994-1997: NIAAA. Faculty mentor to Susan Bihrlle. NRSA (1F31 AA05394-01). Precursors of criminal behavior among alcoholics. \$56,190.

1996-1997. NIAAA. Faculty mentor to Shari Mills. NRSA. (1 F31 MH10799-01) Neuropsychology of violent behavior. \$56,190.

1997-2001. NIMH. Faculty mentor to Pauline Yaralian. (1 F31 MH11761-01). Psychophysiology, aggression, and hyperactivity. \$52,032.

1999-2003. NIMH. Faculty mentor to Lisa Gatzky (1 F31 MH12352-01). Psychophysiology in violence, risk and protective factors. \$128,959.

2001-2004. NIMH Faculty mentor to Sharon Ishikawa (1 F32 MH10823-01). Biological risk and protective factors for antisocial behavior. \$134,841.

2006-2010. NIMH. Faculty mentor to Robert Schug. (1



F31MH74167-01A2). “Frontal and autonomic impairments in psychopathy subtypes. \$160,113.

2007-2009: NIMH Faculty mentor to Yaling Yang. Structural Brain Imaging in Psychopathy. \$101,124

2009-2010: NIMH. Faculty mentor to Andrea Glenn (1 F31 MH086288). “Endocrine correlates of psychopathic traits in children: a multi-system approach”. \$29,350.

#### TEACHING GRANTS

2008. Hewlett Award for Innovation in International Teaching. University of Pennsylvania. \$23,922.

#### INVITED PRESENTATIONS AND SYMPOSIA (first author only)

1. 1980: Locus of control and socialization. British Psychological Society, Aberdeen, Scotland.
2. 1983: Electrodermal nonresponding and antisocial behavior in adolescents. International Society for the Study of Individual Differences, London, England.
3. 1984: Electrodermal correlates of schizotypy and psychopathy in criminals. International Organization of Psychophysiology, London.
4. 1986: Evoked potentials and antisocial behavior NATO Advanced Study Institute on Antisocial Behavior, Italy.
5. 1987: Psychopathic behavior and P300 event-related potentials. Mapperly Hospital, Nottingham University, England.
6. 1987: Schizopathy: Conjoint psychopathic and schizoid traits in criminals and their relationship with smooth-pursuit eye movements, skin conductance orienting, and P3 evoked potentials. International Society for the Study of Individual Differences, Toronto, Canada.
7. 1989: Frontal dysfunction in schizophrenia: An MRI, neuropsychological, and psychophysiological examination. Psychophysiology Society, London, England.
8. 1989: Psychophysiological predictors of criminal behavior. Psychophysiology Society, London, England.

9. 1989: Structural and functional deficits to pre-frontal cortex in schizophrenia. Camarillo State Hospital, Camarillo, California.
10. 1990: Structural and functional characteristics of the corpus callosum in schizophrenics, psychiatric controls, and normal controls. Fifth Biennial Winter Workshop on Schizophrenia, Badgastein, Austria.
11. 1990: Electrodermal activity and psychopathy: A review. 5th International Congress of Psychophysiology, Budapest, Hungary.
12. 1990: Psychophysiology and crime: A prospective study. 5th International Congress of Psychophysiology, Budapest, Hungary.
13. 1990: Frontal deficits in schizophrenia. Neuropsychiatric Institute, UCLA, California.
14. 1990: Evidence for both structural and functional pre-frontal deficits in schizophrenia. Society for Research in Psychopathology, Boulder, Colorado, November 29-December 2.
15. 1991: The Schizotypal Personality Questionnaire (SPQ). 5th Biennial Meeting of the International Society for the Study of Individual Differences, Oxford, July 22-26.
16. 1991: Schizotypal personality: Factor structure, sex differences, psychiatric differences, handedness, genetics, psychophysiology, and neuropsychology. Society for Research in Psychopathology, Cambridge, December 5-8.
17. 1992: Neuroanatomical basis of electrodermal activity in humans NATO Advanced Research Workshop on Electrodermal Activity, Villeneuve d'Ascq, France, May 20-23, 1992.
18. 1992: Biological theories of violence and aggression. Fourth Symposium on Violence and Aggression, Saskatoon, Saskatchewan, Canada, June 21-24.
19. 1992: The biology of violent and antisocial behavior. Department of Criminal Justice, California State University, Fullerton, California, July 8.
20. 1992: Biological bases of violence. Department of Psychology, University of Buffalo, SUNY, October 16.
21. 1992: Brain imaging in violent offenders. Symposium on "Risk Factors for Violence", Society for Research in Psychopathology, Palm Springs, November 15.
22. 1992: Biological basis of antisocial behavior. Department of Psychology, Harvard University, November 30.

23. 1992: Pre-frontal deficits in schizotypal personality disorder. Study Group on "Defining the boundaries of schizophrenia", American College of Neuropsychopharmacology Annual Meeting, San Juan, Puerto Rico. December 14-18, 1992.
24. 1993: Brain imaging in violent offenders. Neurology Department, UCLA Neuropsychiatric Institute, January 4.
25. 1993: Frontal dysfunction in murders. Psychiatric Treatment Center, Alberta Hospital, Edmonton, Canada. January 21.
26. 1993: Schizotypal personality disorder: Neuropsychological and psychophysiological processes. Psychiatric Treatment Center, Alberta Hospital, Edmonton, Canada. January 22.
27. 1993: Psychophysiological basis of violence. Grand Rounds, Allegheny-Singer Research Institute, Pennsylvania Medical College, Pittsburgh, March 31.
28. 1993: Arousal and frontal dysfunction theories of crime. Department of Psychology, University of California, San Diego. April 1.
29. 1993: Schizotypal personality disorder. Department of Psychology, UCLA, April 30.
30. 1993: Schizotypal personality and skin conductance orienting. NATO Advanced Research Workshop on Schizotypal Personality. Castelvecchio Pascoli, Italy, May 31 - June 4.
31. 1993: Methodological and conceptual issues in schizotypal personality research. NATO Advanced Research Workshop on Schizotypal Personality. Castelvecchio Pascoli, Italy, May 31 - June 4.
32. 1993: Biological bases of antisocial behavior. Western Psychiatric Institute and Clinic, University of Pittsburgh, September 13.
33. 1993: Under-arousal as a general predisposition to crime. Symposium on "Underlying mechanisms in antisocial behavior". Annual Meeting of the American Society of Criminology, Phoenix, Arizona, October 27-30.
34. 1994: Biological predispositions for violence and their implications for violence prevention. American Academy for the Advancement of Science, Annual Meeting, San Francisco, February 18-23.
35. 1994: Biological interventions for violence. Grand Rounds, Department of Psychiatry, Stanford University School of Medicine, Palo Alto March 2.

36. 1994: Birth complications and violence. Neuroscience Forum, Department of Veterans Affairs, Neurology Clinic, Los Angeles.
37. 1994: The Schizotypal Personality Questionnaire. Symposium on personality measures, Society for Personality Assessment, Chicago, April 14-17.
38. 1994: Brain imaging studies of violent criminals. Symposium on Social and Biological Predispositions to Violence, American Psychological Association Annual Meeting, Los Angeles, August 12-16.
39. 1994: Schizotypal personality: conceptual and theoretical issues. Presidential Symposium in Honor of Jean Chapman, Society for Research in Psychopathology, Coral Gables, Miami, 29 September - October 2.
40. 1994: Biological correlates of antisocial behavior. Department of Psychiatry, University of Chicago. October 10.
41. 1994: Biological bases of antisocial and violent behavior workshop. Sixth Annual Conference on Bonding and Attachment, Cleveland, Ohio, October 20-23.
42. 1994: Biosocial bases of violence. Colloquium, Department of Psychology, University of Pennsylvania. October 24.
43. 1994: The neuropsychology of violence. Neuropsychiatric Institute, UCLA, Los Angeles, October 27.
44. 1994: Higher autonomic activity at age 15 protects against crime development at age 29. Panel on "Predisposition to violence", Annual Meeting of the American Society for Criminology, Miami, Florida, November 12.
45. 1994: Birth complications combined with early maternal rejection at age one year predispose to violent crime at age 18 years. Panel on "The interaction of social and biological factors in the development of antisocial behavior", Annual Meeting of the American Society for Criminology, Miami, Florida, November 13.
46. 1994: Autonomic factors that protect against crime. Symposium on "Individual Differences", 22nd Annual Meeting of the British Psychophysiological Society, December 19-21, London.
47. 1995: Biology and crime: Science and politics. University of California San Diego: Conference on Dealing with Dangerousness, February 23-26, San Diego.
48. 1995: Biological bases of violence. Grand Rounds, New York State Psychiatric Institute, March 17, New York.

49. 1995: Brain imaging in murderers. Symposium on "Biosocial bases of antisocial and violent behavior", Western Psychological Association, March 30-April 2, Los Angeles.
50. 1995: Violence and biology. Grand Rounds, Department of Psychiatry, University of Chicago at Illinois, April 19.
51. 1995: Violence and biology: Causes and cures. Symposium on "Violence: pathogenesis and management". 148th Annual Meeting of the American Psychiatric Association, Miami, May 20-25.
52. 1995: Prefrontal structural and functional deficits in schizotypals. Symposium on "Brain structure and function in schizophrenia spectrum". 148th Annual Meeting of the American Psychiatric Association, Miami, May 20-25.
53. 1995: Autonomic nervous system factors underlying disinhibited, aggressive, and antisocial behavior in childhood and adolescence. New York Academy of Sciences' Meeting on Understanding Aggressive Behavior in Children, New York, September 30 - October 2.
54. 1995: Schizotypal personality: skin conductance, MRI, and prefrontal dysfunction. Symposium on schizotypy. Society for Psychophysiological Research, Toronto, Canada, October 11-15.
55. 1995: Autonomic risk and protective factors for crime development. Symposium on the Neurobiology of Aggression in Youth. 42nd. Annual Meeting of the American Academy of Child and Adolescent Psychiatry, New Orleans, October 18-22.
56. 1996: Biosocial bases of aggression. Guggenheim Conference on the Biology of Aggression. Toledo, Spain, January 5-9.
57. 1996: Biological bases of antisocial and violent behavior. Dept. of Psychology, University of Minnesota, April 19.
58. 1996: Schizotypal personality disorder. Dept. of Psychology, University of Minnesota, April 19.
59. 1996: Introduction: Theories of Biosocial Interaction. NATO Advanced Study Institute, Rodos Palace, Rhodes, Greece, May 12-21.
60. 1996: The interaction of social and psychophysiological factors. NATO Advanced Study Institute, Rodos Palace, Rhodes, Greece, May 12-21.
61. 1996: Biological bases of violence. Helmholtz Club, University of California, Irvine,

June 11.

62. 1996: Arousal and antisocial behavior Brown-Sequard Hospital, Mauritius.
63. 1996: Biosocial bases of crime and violence. Invited address, American Psychological Association, Toronto, August 9-13.
64. 1996: Biosocial bases of violence. Invited address, Violence and Criminality: A Gathering of Experts. Bahia Resort Hotel, San Diego, August 21-23.
65. 1996: The biological bases of criminal behavior: Implications for Prevention and Treatment. Invited address, Annual Conference of Criminological and Legal Psychology, College of Ripon and York, York, England, September 2-4
66. 1996: Low resting heart rate at age 3 years predisposes to aggression at age 11 years: Findings from the Mauritius Joint Child Health Project. Society for Research in Psychopathology, Atlanta, September 26-29.
67. 1996: Biological Bases of Antisocial and Violent Behavior. Invited address, Sixth International Conference for the Association of to Treat Attachment Disordered Children, Denver, October 17-19.
68. 1996: High autonomic arousal and information-processing at age 15 years as protective factors against crime at age 29 years, Society for Psychophysiological Research, Vancouver, October 17-20.
69. 1996: Biosocial bases of violence. Conference on Ethological and Developmental Approaches to Male Violence. Wayne State University, Detroit, November 15.
70. 1996: Prospective longitudinal studies on antisocial behavior Department of Psychology, Northwestern University, November 19.
71. 1996: Birth complications, maternal rejection, and violence. Symposium on Biological advances in understanding antisocial and criminal behavior. American Society for Criminology, Chicago, November 20-23.
72. 1996: Biosocial bases of violence. Symposium on Future developments in criminological theory. American Society for Criminology, Chicago, November 20-23.
73. 1997: Brain imaging and violence. Special Topic Speaker, International Neuropsychology Society, Orlando, Florida, February 5-8.
74. 1997: The biology of dangerous offenders: Identifying risk factors. West Coast Child

and Adolescent Mental Health Conference, San Diego, February 13-16.

75. 1997: Aggression and Violence: Biosocial perspectives Symposium on Biosocial Bases of Aggression, Society for Personality Assessment, San Diego, March 12-16.
76. 1997: Recidivistic crime as a clinical disorder. Symposium on Criminality and Psychopathology, American Psychiatric Association, San Diego, May 17-22 .
77. 1997: Lateral asymmetries in brain structure in violent offenders Conference on Cerebral Laterality and Psychopathology, London, 18-21 June.
78. 1997: Violence: reward and emotion. British Neuropsychiatric Association and American Neuropsychiatric Association, Cambridge, England, July 20-22.
79. 1997: Prefrontal deficits in violent offenders in the community Institute of Psychiatry, Maudsley Hospital, London, September 30.
80. 1997: Psychopathology and tonic heart rate Symposium on What can psychophysiology contribute to our understanding of psychopathology?, Society for Research in Psychopathology, Palm Springs, 23-26 October.
81. 1997: Schizotypal personality: Conceptual and theoretical issues Research seminar, Department of Psychiatry, University of Iowa, 10 November.
82. 1997: Biosocial bases of violence Grand Rounds, Department of Psychiatry, University of Iowa.
83. 1997: Birth complications and violence Interactive Forum: Community, Society, and Culture. Association of Pre- and Perinatal Psychology and Health, San Francisco, December 4-7.
84. 1997: Structural and functional brain imaging correlates of violence Panel on Imaging Disorders of Impulse Control, American College of Neuropsychopharmacology, December 8-12.
85. 1998: Schizotypal personality disorder. Department of Psychology, UCLA. January 16.
86. 1998: Biosocial bases of violence. Fuller Seminar, Pasadena, CA, January 22.
87. 1998: Biological bases of adolescent antisocial behavior. Panel on Interdisciplinary Approach to Understanding Juvenile Delinquency. San Diego, February 26-March 1.

88. 1998: Birth complications, maternal rejection, and violence. Invited Speaker, Primal Health Research Conference, St. Andrews, Scotland April 23, 1998.
89. 1998: Biosocial bases of violence. Department of Psychology, University of Hong Kong, June 25
90. 1998: Prenatal health: implications for antisocial and violent behavior. Department of Psychiatry, Medical School, Nanjing University, July 20.
91. 1998: Recidivistic crime as a disorder. Panel on Law and Public Policy, Conference on Neuroscience and the Human Spirit, Washington, D.C., September 24-25.
92. 1998: Biology and violence - brain research. Invited address, Oregon Criminal Defense Lawyers Association Juvenile Law Seminar, Salishan, Oregon, October 23-24.
93. 1998: Biological risk factors for conduct disorder and antisocial behavior. Symposium on A Looking for the internal deficit : Genetics, biology, ecology, and crime. 45<sup>th</sup> Annual Meeting of the American Academy of Child, and Adolescent Psychiatry, Anaheim, CA, October 27 - November 1.
94. 1998: Neuropsychological factors in crime and violence. Invited address, National Academy of Neuropsychology, Washington DC, November 4-7.
95. 1998: Biosocial bases of violence. Grand Rounds, Department of Psychiatry, Columbia University, November 18.
96. 1998: Biosocial bases of child and adolescent antisocial behavior. Developmental Psychopathology Section, NIMH, Bethesda, November 20.
97. 1998: Biological bases of violence. Plenary Panel, International Society for Traumatic Stress Studies, Washington, D.C., November 20-23.
98. 1999: The development of aggressive behavior Invited address, UCSD: West Coast Child and Adolescent Mental Health Conference, San Diego, 18-21 February.
99. 1999: Mad or bad? Is criminality a mental disorder? Plenary session, UCSD: West Coast Child and Adolescent Mental Health Conference, San Diego, 18-21 February.
100. 1999: Biosocial bases of violence. Guest speaker, Clinical Psychology Psychfest, Department of Psychology, UCLA, April 20
101. 1999: Joseph Zubin Memorial Award Lecture: Biosocial bases of violence. Western



- Psychiatric Institute and Clinic, University of Pittsburgh, May 14, 1999.
102. 1999: Brain mechanisms and aggression. Departmental Colloquium, Department of Psychology, Loma Linda University, May 20.
  103. 1999: Educational and nutritional enrichment at age 3-5 years reduces conduct disorder at age 17 years: Evidence from the Mauritius Child Health Project. Symposium on Prevention trials targeting conduct disorder or depression. Society for Prevention Research, New Orleans, 24-26 June.
  104. 1999: Genetics, perinatal factors, and later outcome. Symposium on Violence in Juveniles: Neurobiological factors. European Association for Forensic Child and Adolescent Psychiatry, and Department of Psychiatry, Free University, Netherlands, September 14.
  105. 1999: Autonomic factors. Symposium on Violence in Juveniles: Neurobiological factors. European Association for Forensic Child and Adolescent Psychiatry and Department of Psychiatry, Free University, Netherlands, September 14.
  106. 1999: Brain imaging. Symposium on Violence in Juveniles: Neurobiological factors. European Association for Forensic Child and Adolescent Psychiatry and Department of Psychiatry, Free University, Netherlands, September 14.
  107. 1999: Biological contributions to child and adolescent antisocial behavior Symposium on Biological Aspects of Aggression, European Congress on Child and Adolescent Psychiatry, Hamburg, Germany, September 15-16.
  108. 1999: Crime and biology: recent advances. Keynote address, German Psychological Association, Nuremberg, Bavaria, September 17-18.
  109. 1999: Psychopathy, violence, and brain imaging Keynote speaker, Queen Sofia Center for the Study of Violence: International Workshop on Violence and Psychopathy, Valencia, Spain, November 15-16.
  110. 2000: Biosocial bases of violence Department of Occupational Therapy, University of Southern California, January 13-14.
  111. 2000: Neurobiological bases of violence. Neuroscience Lecture Series, Department of Neuropharmacology, Scripps Research Institute, La Jolla. January 18-20.
  112. 2000: Brain deficits in psychopaths Controversies in Neuropsychiatry - Psychopathy. American Neuropsychiatric Association, Fort Myers, Florida, February 20-22.

113. 2000: The development of antisocial behavior: biosocial perspectives. Invited speaker, Alumni Weekend, Department of Psychiatry, Stanford University, April 28-29.
114. 2000: Biosocial bases of violence. Invited speaker, NIH Behavioral and Social Sciences Seminar Series, NIH, Bethesda, MD, May 25.
115. 2000: Brain function and aggression Invited address, Conference on Biology of Aggression, Midland, Ontario, Canada, June 14-16.
116. 2000: Biosocial bases of violence. Grand Rounds, Department of Psychiatry, University of California, Davis, June 21.
117. 2000: Female and male antisocial behavior: biosocial correlates. Invited speaker, Conference on Juvenile Antisocial Behavior, Switzerland, September 18-19.
118. 2000: Biological bases of violence. Department of Psychology, University of Melbourne, Australia, October 4.
119. 2000: Violence and brain imaging Department of Psychology, University of Macquarie, Australia, October 5.
120. 2000: The biological basis of criminal careers. 13<sup>th</sup> Annual Occupational Science Symposium@ Biological basis of Occupation. University of Southern California, 26-27 October.
121. 2000: Early educational and health enrichment is associated with increased autonomic and central nervous system arousal / orienting. Symposium on Biobehavioral Integration of Aggression and Development, NIH Robert B. Cairns Memorial Conference, Chapel Hill, North Carolina, 14-15 October.
122. 2000: Biology and violence. Grand Rounds, Nathan Kline Institute, New York, November 13.
123. 2000: Neurobiology, behavior, and prevention National Institute of Drug Abuse Workshop, NIMH, Rockville MD, November 15.
124. 2000: Biosocial bases of violence Grand Rounds, Department of Psychiatry, Harbor / UCLA Medical Center, Los Angeles, December 12.
125. 2001: Violence and psychopathy. Queen Sofia Center for Violence, F.N.A.C., Madrid, Spain, February 28.
126. 2001: Early environmental enrichment and the prevention of schizotypy Key speaker, NATO Advanced Research Workshop on "Schizophrenia and

- Schizotypy: An Integration”, Il Ciocco, Tuscany, Italy, March 24-27.
127. 2001: Brain deficits in violent offenders. Symposium on “Neurobiological Bases of Violence”. Bureau of Prisons, Butner, North Carolina, May 30-31.
  128. 2001: Biosocial bases of childhood aggression. Keynote speaker, 10<sup>th</sup> Scientific Meeting of the International Society for Research in Child and Adolescent Psychopathology, June 26-30.
  129. 2001: Biological bases of violence. Invited lecture series on “Biological Basis of Violence”, International University Menendez Pelayo, Valencia, Spain, October 1-5.
  130. 2001: Biology and violence: Theory and practice. Invited one-day symposium, Les Marronniers Hospital, Tournai, Belgium, October 8.
  131. 2001: Neuroimaging and violence. Symposium on “Neuroimaging of co-occurring mental disorders: Implications for treatment”. Eight Annual Conference on Behavior, Clinical Neuroscience, Substance Abuse, and Culture, Los Angeles, October 25-26<sup>th</sup>
  132. 2001: Brain bases of violence. Invited panelist, 3<sup>rd</sup> Annual Dartmouth Student Science Congress, Dartmouth College, November 3.
  133. 2001: Criminal behavior and malingering as psychopathology. Conference on Malingering and Mental Illness, Blenheim Palace, Woodstock, Oxford, November 7-9.
  134. 2001: Biosocial bases of violence. Invited colloquium, Department of Psychology, University of California – Long Beach. December, 5.
  135. 2001: Biosocial bases of violence. Grand Rounds, Department of Psychiatry, Cedars-Sinai Medical Center, Los Angeles, December 6.
  136. 2001: Biological bases of antisocial and violence behavior: An update. Fuller Seminary, Pasadena. January 15.
  137. 2002: Biosocial bases of violence. Kennedy Center Lectures on Human Development and Developmental Disabilities, Department of Psychology, Vanderbilt University, February 6-8.
  138. 2002: The biological basis of antisocial behavior in children and adolescents. Keynote speaker, Western Psychological Association 82<sup>nd</sup> Annual Convention, Irvine, 11-14 April.

139. 2002: Antisocial behavior in children: Developmental perspectives. Keynote address, 8<sup>th</sup> Annual Psychology Day, Department of Psychology, California State University, Fullerton, April 18.
140. 2002: Biological processes in the development of antisocial behavior in children. Nevada Psychological Association, Reno, May 4.
141. 2002: Brain imaging and antisocial personality disorder. Invited presentation, 4<sup>th</sup> National Congress on Personality Disorders, Bilbao, Spain, June 20-23.
142. 2002: Brain deficits, sexual violence, and abuse. Invited address, International Association for the Treatment of Sexual Offenders, Vienna, Austria, September 11-14.
143. 2002: Biological basis of violence. Grand Rounds, Neuropsychiatric Institute, University of California, Los Angeles, September 24<sup>th</sup>.
144. 2002: The development of antisocial behavior in children. Department of Pediatrics, Santa Monica – UCLA Medical Center, University of California, Los Angeles, September 25.
145. 2002: Autonomic deficits and childhood conduct problems: Implications for etiology, psychopathy, desistence, and prevention. Symposium on “Differing Approaches to the Study of Conduct Problems and Antisocial Behavior in Childhood”. Society for Psychophysiological Research, Washington DC, 2-6 October.
146. 2002: Insights on violence from brain imaging research. Keynote speaker at the Annual Meeting of the Belgian College of Neuropsychopharmacology and Biological Psychiatry, Belgium, October 25.
147. 2002: The violent mind: Insights from brain imaging. Keynote speaker, Queen Sofia Center for the Study of Violence: International Workshop on Biology and Violence, Valencia, Spain, November 7-8.
148. 2003: Crime, Violence, and the Brain. Invited speaker, The California Club, Los Angeles,
149. 2003: Schizotypal and violence. Seminar series on schizophrenia and major affective disorders, UCLA Aftercare Research Program, March 14.
150. 2003: Early risk factors for antisocial and aggressive behavior. Division of Neurology, Childrens’ Hospital, Los Angeles, March 25.
151. 2003: The neurobiology of violence. Plenary session on Neurobiology of Violence

and Treatment for Schizophrenia, International Congress on Schizophrenia Research, Colorado Springs, Colorado, March 29 - April 2, 2003.

152. 2003: The neurobiology of violence: Insights from brain imaging. Keynote speaker, Conference on brain imaging and antisocial behavior, University of Montreal, May 7.
153. 2003: Biosocial bases of antisocial behavior. Keynote speaker, Conference on brain imaging and antisocial behavior, University of Montreal, May 7.
154. 2003: Neurodevelopment and psychopathy. Invited speaker, Symposium on Psychopathy, University of Wisconsin-Madison, July 19-21.
155. 2003: Psychophysiology, Brain Imaging, and Antisocial Personality Invited address, Third Psychopathy Symposium on "Psychiatry and the Problem of Evil, Department of Psychiatry, University of Sheffield, U.K., September 18.
156. 2003: Schizophrenia and violence. Keynote speaker, 18<sup>th</sup> Annual Noyes Schizophrenia Conference, Philadelphia, October 10.
157. 2003: Brain mechanisms and antisocial behavior. Colloquium, Division of Humanities and Social Sciences, and Computation and Neural Systems Program, California Institute of Technology, Pasadena, October 23.
158. 2003: Biological basis of violence. Invited speaker, 8<sup>th</sup> Annual Review of Psychiatry Conference, Neuropsychiatric Institute, University of California, Los Angeles, October 24-25th.
159. 2003: Biosocial bases of violence: prevention implications. Invited seminar, Columbia Center for Youth Violence Prevention, Columbia University, New York, December 1.
160. 2003: Lombroso's legacy: Crime, brain mechanisms, and development. Departmental colloquium, Department of Psychology, Harvard University, Boston, December 3.
161. 2004: Biosocial bases of violence. Taiwan National Science Council Visiting Scholar's Lecture, Institute of Criminology, National Taipei University, Taiwan, April 20.
162. 2004: Brain imaging and violence. Taiwan National Science Council Visiting Scholar's Lecture, Integrated Brain Research Unit, Taipei Veterans General Hospital, April 20.
163. 2004: Brain mechanisms and antisocial behavior. Taiwan National Science Council

- Visiting Scholar's Lecture, Institutes of Psychology and Criminology, National Chung Cheng University, Chiayi, Taiwan, April 21.
163. 2004: Biological basis of violence: prevention implications. Taiwan National Science Council Visiting Scholar's Lecture, Institutes of Psychology and Criminology, National Chung Cheng University, Chiayi, Taiwan, April 21.
  164. 2004: The impact of environmental enrichment in reducing schizotypy and criminal behavior in adulthood. Borchard Foundation Conference on "Crime and schizophrenia: Causes and cures". Chateau de la Bretesche, Missillac, Brittany, France, 13-16 June.
  165. 2004: Crime, brain mechanisms, and development. Grand Rounds, Department of Psychiatry, University of Southern California, July 6.
  166. 2004: Biosocial bases of violence. Departmental Colloquium, Department of Psychology, Virginia Tech, October 8.
  167. 2004: Violence: An interdisciplinary, clinical neuroscience perspective. Invited speaker, Annual Bellarmine Forum on "Violence: An interdisciplinary Investigation into the Human Spirit. Loyola Marymount University, Los Angeles, November 7-13
  168. 2005: Antisocial Behavior: Brain Mechanisms, Development, and Prevention. Departmental colloquium, Department of Psychology, Chinese University of Hong Kong, Hong Kong, March 15.
  169. 2005: Biosocial bases of violence. Opening Address, UNESCO International Congress on Violence and its Contexts, Santiago de Compostela, Spain, April 14.
  170. 2005: The biopsychosocial bases of violence. Graduate School of Criminology, National Taipei University, Taiwan, April 21, 2005.
  171. 2005: Lombroso's legacy: Crime, brain mechanisms, and development. Keynote speaker, 2<sup>nd</sup> International Conference on Crime and its Control, Taipei, Taiwan, April 22.
  172. 2005: Unlocking the criminal mind: The biosocial keys. Distinguished Lecture Series, University of Hong Kong, April 29.
  173. 2005: Neurobiology of violence. Key speaker at the RIKEN Brain Science Institute Summer Program Lecture Course on "Neurobiology of Mental Disorders and the Mind", Tokyo, Japan, July 11-22.

174. 2005: The neurobiology of violence: Brain imaging findings. Japanese Society for Neuroscience, July 26-28, Yokohama, Japan.
175. 2005: The Mauritius Child Health Project. Lifetime Perspectives on Risk, Prediction, and Development, Symposium in Honor of Sarnoff A. Mednick, Yountville, CA, September 11.
176. 2005: Criminal Behavior: A Clinical Neuroscience Perspective. Invited Colloquium, Department of Criminology, University of Pennsylvania, October 17.
177. 2005: The neurobiology of criminal behavior. Department of Psychiatry, University of Pennsylvania, December 19.
178. 2006: Environmental enrichment, biology, and the development of antisocial behavior. Invited address, Seventh Annual Meeting of the Pediatric Therapy Network, Long Beach, CA, February 24.
179. 2006: Antisocial Behavior: Brain Mechanisms, Prevention, and Moral Responsibility. Invited Address, American Psychological Association, New York, May 25-28.
180. 2006: Biocriminology: A new generation of research on criminal behavior. Invited address, Stockholm Prize Symposium, University of Stockholm, Stockholm, June 15-17.
181. 2006: Antisocial personality disorder and psychopathy: Social neuroscience perspectives. Invited speaker, Workshop on Biology of Social Cognition, Cold Spring Harbor Laboratory, New York, July 17.
182. 2006: "Lombroso's legacy: Violence, brain mechanisms, and moral responsibility. Keynote address, International Society for Research on Aggression, Minneapolis, July 22-25.
183. 2006: Antisocial Behavior: Brain Mechanisms, Prevention, and Moral Responsibility. Departmental Colloquium, Department of Psychology, University of Arizona, Tucson, Arizona, September 15.
184. 2006: Violence, brain mechanisms, and moral responsibility. President's Council Meeting, Cold Spring Harbor Laboratories, New York, October 6.
185. 2006: Development of antisocial behavior in children and adults. Department of Psychology and Social Behavior, University of California, Irvine, October 9<sup>th</sup>.
186. 2006: Brain mechanisms and criminal behavior: Implications for criminal justice policy. Ministry of Justice, The Hague, Netherlands, October 17.

187. 2006: Neural basis of immoral behavior. Master Lecture, Department of Psychiatry, Free University, Netherlands.
188. 2006: The immoral brain: Evolution, brain structure, and cheating. Invited address, Conference on "The Moral Sense", Ghent University, Ghent, Belgium, October 20-21.
189. 2006: Antisocial Behavior: Brain Mechanisms, Prevention, and Moral Responsibility. Baylor Medical College November 16.
190. 2007: Stopping crime before it starts: A fishy story from the island of Mauritius. Department of Criminology Seminar Series, University of Pennsylvania, January 19.
191. 2007: The neuroanatomical basis of antisocial, aggressive behavior. Invited paper, Symposium on "What are the Sociobiological Bases for Aggression", American Neuropsychiatric Association, Tucson, Arizona, 16-20 February.
192. 2007: Violence: Brain Mechanisms, Prevention, and Moral Responsibility. Departmental Colloquium, Department of Forensic Psychiatry, University of Kuopio, Finland, March 13, 2007.
193. 2007: Biology, treatment, and antisocial behavior in children and adults. Departmental Colloquium, Department of Psychology, Cardiff University, Wales, March 15, 2007.
194. 2007: Brain imaging research on violence: implications for society. Departmental Colloquium, Imaging Neuroscience, Institute of Neurology, University College London, London, England. March 16, 2007.
195. 2007: Emotions, morality, and criminal responsibility. Keynote speaker, Foundation for Psychocultural Research, UCLA, Los Angeles, April 1.
196. 2007: The brain basis to violent and psychopathy: Moral, ethical, and legal implications. Keynote speaker, Grand Office of Prosecution, Seoul, South Korea, April 4.
197. 2007: Crime intervention and prevention: Biosocial interventions in community and prison settings. Keynote speaker, Department of Juvenile Justice and Corrections, Seoul, South Korea, April 5.
198. 2007: The developmental of antisocial behavior: a biosocial perspective. Keynote address, Society for Life History Research, Atlanta, April 25-28.



199. 2007: Moral decision-making and antisocial behavior. Departmental Colloquium, Department of Behavioral Biology, University of Utrecht, Netherlands, May 29.
200. 2007: The neurobiology of crime and psychopathy. Departmental Colloquium, Free University, Amsterdam, May 31.
201. 2007: Preventing murder through nutritional interventions. Invited address, Stockholm Prize Symposium, University of Stockholm, Stockholm, June 4-6.
202. 2007: What does neuroscience tell us about crime as an addiction? Invited talk, MacArthur Neuroscience and Law Project, University of Santa Barbara, September 14.
203. 2007: Antisocial personality disorder and Schizotypy. Keynote address, International Congress of Personality Disorders, The Hague, Netherlands, September 19-22.
204. 2007: Preventing Violence with Better Nutrition. Keynote speaker, National Taipei University. Department of Criminology, Taipei, Taiwan, October 11.
205. 2007: Psychopaths: Early developmental risk factors and dysfunctional brain mechanisms. Keynote address, International Conference on Violence and Drug Abuse, Hsuan Chuang University, Hsinchu, Taiwan, October 12.
206. 2007: Neurocriminology and neuroethics: Brain systems that predispose to violent and antisocial behavior, and ethical implications for society. Departmental Colloquium, Department of Psychology, National Taiwan University, Taipei, Taiwan, October 12.
207. 2007: Violence: Brain mechanisms and moral responsibility. Symposium on "Neurobiology of Escalated Aggression and Violence". Society for Neuroscience, San Diego, November 3-7.
208. 2007: Crime prevention through experimental nutritional intervention. Symposium on "Criminal Justice's Need for Experimental Research". American Society of Criminology, Atlanta, November 14-17.
209. 2007: The neurobiology of antisocial behavior, violent, and psychopathic behavior. Invited address, National Academy of Neuropsychology, Scottsdale, Arizona, November 14-18.
210. 2008. Brain mechanisms, moral decision-making, and antisocial behavior. Board of the British Neuropsychiatric Association, Wales, February 7- 8.
211. 2008. Neurobiological treatment implications for aggression and violence: Clinical

- neuroscience perspectives. Welsh Institute of Cognitive Neuroscience, Wales, February 9.
212. 2008. Neural bases of antisocial behavior: Neuroethical and neurolegal implications. Finnish Psychiatric Association, Helsinki, Finland, March 13.
  213. 2008. Neural bases of antisocial behavior: Neuroethical and neurolegal implications. Neuroscience Speaker Series, Temple University, April 2.
  214. 2008. The biology and social implications of free will. Invited speaker, IVth Brazilian Congress of Brain, Behavior and Emotion, Porto Alegre, Brazil, May 21.
  215. 2008. The neurobiology of crime. Keynote speaker, IVth Brazilian Congress of Brain, Behavior and Emotion, Porto Alegre, Brazil, May 22.
  216. 2008. Neuroimaging in pathological liars and antisocials. Invited speaker, IVth Brazilian Congress of Brain, Behavior and Emotion, Porto Alegre, Brazil, May 22.
  217. 2008. Brain imaging and neurocognitive evidence of both limbic and frontal dysfunction in spouse abusers. Stockholm Criminology Symposium, Speaker, Symposium on Brain mechanisms and antisocial behavior in adolescents and adults: The role of emotion processing. Stockholm, Sweden, June 16-18.
  218. 2008. Antisocial behavior: Dysfunctional brain mechanisms and moral decision-making. Invited speaker, International Symposium "Foundations of Human Social Behavior", University of Zurich, Zurich, Switzerland, June 18 to 21.
  219. 2008. The criminal brain: How, could, and should we change it? Media seminar on "Neuroscience and Society, Penn Club of New York, New York, September 19, 2008.
  220. 2008: Unlocking crime: The biological keys. Engaging Minds: Pushing the Frontiers of Knowledge. Presidential "Making History" fundraising campaign for University of Pennsylvania. Lincoln Center, New York, September 20, 2008.
  221. 2008: Antisocial and aggressive behavior in childhood and adolescence: A neurodevelopmental perspective. Keynote address, 10<sup>th</sup> Anniversary Congress, European Association for Forensic Child and Adolescent Psychiatry, Psychology, Free University, Amsterdam, Netherlands, October 23.
  222. 2008: Biosocial bases of antisocial behavior: Treatment and intervention implications. Penn State University, College Park, October 29, 2008.

223. 2008: Brain Imaging Evidence of Both Limbic and Frontal Dysfunction in Spouse Abusers. Symposium on Biological Bases of Criminal Behavior, American Society of Criminology. November 12.
224. 2009: Nutritional supplements as a treatment for aggression in children. University of Nanyang, Singapore, February 3.
225. 2009: Neurobiology of Violence: Neuroethical and neurolegal implications. Distinguished Speaker Series, Department of Psychological Sciences, University of Missouri-Columbia,
226. 2009: Neurobiology of Violence: Prevention and intervention implications. Keynote address, International Conference on Reintegration of Youth in Conflict With the Law, University of Javeriana, Cali, Columbia, South America, March 18-19.
227. 2009: Neurobiology of Crime: Prevention Implications. University Correctional Health Care: New Jersey Department of Corrections, March 24.
228. 2009. Neurocriminology: The neurobiology of violence and its implications for neuroethics and neurolaw. Department of Police Administration, Dongguk University, Seoul, May 26.
229. 2009: Is it wrong to punish prisoners? Balancing harmony with justice. Plenary Address, International Conference on Social Work and Counseling Practice, City University, Hong Kong, June 4,
230. 2009: Biosocial Bases of Violence: Implications for Intervention and Prevention. Keynote Address, International Conference on Social Work and Counseling Practice, City University, Hong Kong, June 4,
231. 2009: Successful and Unsuccessful Psychopaths: Differential Biosocial Risk Factors. Panel on Psychopathy: Biosocial Risk Factors, Prediction, Treatment, and Ethics, Stockholm, Sweden, June 16-18, 2009
232. 2010. The brain and antisocial personality: Neuroethical and Neurolegal Implications. Keynote Address, VI Annual Meeting of the Neuropsychology and Neuropsychiatry Society, Barcelona, Spain, March 5, 2010.
233. 2010: Violence Prevention: A Nutritional Approach. Keynote Address, European Federation of Child and Adolescent Psychiatry, Basle, Switzerland, September 8.
234. 2010: Low electrodermal fear conditioning predisposes to childhood aggression and adult crime. Symposium on neurobiological markers of antisocial behavior. Invited presentation, European Federation of Child and Adolescent Psychiatry, Basle, Switzerland, September 7-10.

235. 2010: The Criminal Mind. Invited Speaker, AAAS Judicial Seminar on Emerging Issues in Neuroscience, Harvard University Law School, September 20-12.
236. 2010: Omega-3 as a potential treatment for childhood aggressive and antisocial behavior. Abell Foundation meeting on 'Exploring the Impact of Vitamins & Micronutrients on Children's Behavior'. Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, November 4.
237. 2010: The neurobiology of psychopathy: Implications for intervention and prevention. Colloquium Speaker, Neuroscience Program, Florida State University, November 10.
238. 2010: The violent brain: A nutritional perspective. International Summit on Transdisciplinary Approaches to Violence Prevention. Virginia Tech, November 12-13.
239. 2010: Presence of a neurodevelopmental marker (cavum septum pellucidum) for limbic maldevelopment in psychopathy and antisocial personality disorder. Symposium on Brain Impairments in Offenders. American Society of Criminology, November 17-20.
240. 2011: Neurocriminology: Neuroethical & Neurolegal Implications. Invited speaker, Organization for Biology, Bio-Medical Sciences and Psychobiology, University of Amsterdam, Netherlands, January 19<sup>th</sup>.
241. 2011: Neurobiology of Antisocial Behavior. Keynote speaker, 5th Annual National Congress on Neurobiology in Forensic Psychiatry, Nijmegen, Netherlands, February 20.
242. 2011: Seeds of Sin: Early Biological Causes and Cures for Crime. Invited speaker, Engaging Minds, British Museum, London, January 22.
245. 2011: Neurocriminology: Implications for Public Policy. Colloquium speaker, Neuroscience and Public Policy Program, University of Wisconsin: Madison, February 11.
246. 2011: A neurodevelopmental basis to criminal behavior. Invited panelist, Nature, Nurture, and Antisocial Behavior: Biological and Biosocial Research on Crime. American Academy for the Advancement of Science, 17-21 February, Washington, D.C.
247. 2011: Responsibility and Neurocriminology. Invited speaker, Royal Society and National Academy of Sciences Scientific Forum on Neuroscience and the Law. March 2.

248. 2011: Neurocriminology: Neuroethical and Neurolegal Implications. Saturday Science Open Public Lecture, 7th Annual Life Sciences & Society Symposium, University of Missouri, March 18-20.
249. 2011: The Criminology-BioPsychology Interface: Implications for society. Michael Dinoff Memorial Open Public Lecture, University of Alabama, April 14.
250. 2011: Neurocriminology: The Next Frontier. Departmental Colloquium, Institute of Criminology, Cambridge University, May 5.
251. 2011: Laboratory Experiments: Neurological Predictors of Violence. New Advances in Experimental Criminology NSCR International Workshop Amsterdam, The Netherlands, May 9-10.
252. 2011: Neurocriminology: The Brain Basis to Crime. Symposium on Joint CAS-Penn Research Center in Brain Mapping, Chinese Academy of Sciences, Beijing, May 27.
253. 2011: The violent brain: Causes and cures. Keynote address, 7th Brazilian Congress of Brain, Behavior and Emotions. Gramado, Brazil, June 15-18.
254. 2011: Neurocriminology: Implications for Free Will and the Law. Keynote address, 7th Brazilian Congress of Brain, Behavior and Emotions. Gramado, Brazil, June 15-18.
255. 2011: Developmental Markers for Antisocial Behavior. Keynote address, 7th Brazilian Congress of Brain, Behavior and Emotions. Gramado, Brazil, June 15-18.
256. 2011: The functional neuroanatomy of antisocial personality disorder. Keynote address, 7th Brazilian Congress of Brain, Behavior and Emotions. Gramado, Brazil, June 15-18.
257. 2011: Neurocriminology: Neuroethical and neurolegal implications. Keynote Speaker, Interdepartmental Ph.D. Program for Neuroscience, UCLA, September 24, 2011.
258. 2011: The Criminal Mind. AAAS Judicial Seminar, Federal Courthouse, Philadelphia, November 11.
259. 2011: The biology of violence: Implications for the law. Society for Neuroscience, Washington DC, November 12.
260. 2011: Neurocriminology. Invited Speaker, Presidential Symposium, American Society of Criminology, November 16.

261. 2011. The Fearless psychopath: Neurobiological research on psychopathy Invited Speaker, Health Promotion Board, Department of Child and Adolescent Psychiatry, Institute of Mental Health, Singapore, December 7.
262. 2012: The brain basis to crime: Ethical and legal implications. Invited Address, Psi Chi / SEPA Southeastern Psychological Association, New Orleans, February 16.
263. 2012: The Violent Brain: Ethical and Legal Implications. Public Lecture as Distinguished Visiting Scholar, Virginia Tech Carilion Research Institute (VTCRI) in Roanoke, Virginia, March 8.
264. 2012. The functional neuroanatomy of violence". Research seminar as Distinguished Visiting Scholar, Virginia Tech Carilion Research Institute (VTCRI) in Roanoke, Virginia. March 9.
265. 2012. Neurocriminology. Invited Colloquium Speaker, Department of Criminal Justice, Temple University, March 23.
266. 2012. The fearless psychopath. Maastricht, Holland. Keynote Address, 40<sup>th</sup> Annual Meeting of the Netherlands Psychiatric Association
267. 2012: Biomarkers for crime. Invited address in honor of Professor David Farrington, Institute of Criminology, University of Cambridge. April 20.
268. 2012: Crime prevention: A nutritional approach. Invited colloquium, Institute of Psychology, University of Erlangen-Nuremberg, May 21.
269. 2012: Crime prevention: A nutritional approach. Departmental Colloquium, Institute of Criminology, Cambridge University, May 24.
270. 2012. Omega-3 supplementation and cognitive behavior therapy for reducing aggressive behavior in children. Symposia presentation, Stockholm Criminology Symposium. June 11-13.
271. 2012: Child Behavior Problems: A Nutritional Approach. Grand Rounds, Department of Psychiatry, University of Vermont. September 28.
272. 2012: Neurocriminology: Final Frontier. Department of Criminology, University of Maryland, College Park, MD. October 11.
273. 2012: The neuroscience of violence. Invited speaker, AAAS Judicial Seminar on Emerging Issues in Neuroscience, University of Minnesota School of Law, Minneapolis, October 25-26.

274. 2013: Fear conditioning and antisocial behavior. Invited address, Winter School, Bavaria, February 1.
275. 2013: Reduced Amygdala Volumes in Chinese Psychopathic Murderers. Symposium on psychopathic personality, Eastern Psychological Association, New York, March 2, 2013.
276. 2013: Neurobiology of Violence. Invited speaker, Colloquium on Law, Neuroscience, and Criminal Justice, Stanford Law School, March 14-15,
277. 2013: The anatomy of violence. Invited speaker, Student Association for Law and Mind Sciences, Harvard Law School, April 4.
278. 2013: Neurobiology of violence. Invited Speaker, AAAS Seminar on Emerging Issues in Neuroscience, Atlanta, GA, April 11-12,
279. 2013: Controversial issues in psychopathy research. Invited speaker, inaugural paper for the Jevon Scott Newman Award. Society for the Scientific Research on Psychopathy, Atlanta, 6 June.
280. 2013: The anatomy of violence: Back to the future. Invited speaker, Symposium on The Future of Criminology. Stockholm Symposium. June 10.
281. 2013: The anatomy of violence: The biological roots of crime. Keynote speaker, Dutch Society of Criminology, University of Leiden, Netherlands, June 14.
282. 2013: The anatomy of violence: The biological roots of crime. Invited Plenary Speaker, World Congress on Brain, Behavior, and Emotions: "The Making of Violence" Sao Paulo, June 27, 2013
283. 2013: Criminal behavior and free will: New science meets old dilemmas. Invited Plenary Speaker, World Congress on Brain, Behavior, and Emotion, Sao Paulo, Brazil, June 29.
284. 2013: The anatomy of violence: The biological roots of crime. Invited colloquium, School of Criminology and Criminal Justice, Northeastern University, September 27.
285. 2013: The functional neuroanatomy of antisocial behavior in children. Invited participant, Symposia on The neurobiology of persistence in antisocial behavior. European College of Neuropsychopharmacology, Barcelona, Spain, October 8.
286. 2013: Prediction, Punishment, and Prevention. Invited speaker, Neuroscience in court. European College of Neuropsychopharmacology, Barcelona, Spain, October 8.

287. 2013: The anatomy of crime: The growing body of evidence in neurocriminology. Colloquium, Institute of Criminology, University of Cambridge, UK, October 17.
288. 2013: The anatomy of violence: The biological roots of crime. Invited speaker, Ministry of Justice, Brussels, Belgium, October 22.
288. 2013: The anatomy of violence: The biological roots of crime. Keynote speaker, 8<sup>th</sup> European Congresses on Violence in Clinical Psychiatry, Ghent, Belgium, October 25.
289. 2013: The anatomy of Violence. Invited speaker, Oxford University Psychology Society, Oxford, UK, November 6.
290. 2013: The anatomy of violence. Grand Rounds, Department of Neurology, University of Maryland Medical School, Baltimore, November 13.
291. 2013: The anatomy of violence. Public lecture, College of Charleston, November 14.
292. 2013: The anatomy of violence. Keynote speaker, University Correctional Health Care, Mercerville, NJ, November 18.
293. 2013: The future of biosocial criminology. Invited speaker, Presidential Panel, American Society of Criminology, Atlanta, November 20.
294. 2013: The anatomy of violence. Keynote address, Congress on Forensic Psychiatry, Utrecht, Netherlands, December 17.
295. 2014 The anatomy of violence. Keynote address, Taiwan Society of Cognitive Neuroscience National Central University, Taiwan, January 18.
296. 2014. The anatomy of violence: The Biological Roots of Crime. Annual Lecture, School of Law, University of Leeds, February 5.
297. 2014. The anatomy of violence: The biological roots of crime. The Anatomy of Violence: The Biological Roots of Crime. Centre for Criminology, University of Oxford, February 27.
298. 2014. The anatomy of violence: The biological roots of crime. Departmental Seminar, Department of Psychology, University of York, March 4.
299. 2014. The anatomy of violence: The biological roots of crime. Center for Liberal Arts and Social Science Distinguished Public Lecture Series Scheme, Nanyang Technological University, Singapore, March 11.



300. 2014. The anatomy of violence: The biological roots of crime. Invited speaker, 2014 GALA 5<sup>th</sup> anniversary weekend workshop on “The Origin of Violence: From the Brain to World Wars”, Arizona State University, April 5.
301. 2014. Hot-blooded fights, cold blood-spilling, and the brain: Two different forms of aggression. Plenary Speaker, Symposium on “The role of positive and negative aggression”, International Congress on Brain, Behavior, and Emotion, Montreal, Canada, April 8.
302. 2014. The functional neuroanatomy of psychopathic behavior. Invited speaker, Symposium on “The role of positive and negative aggression”, International Congress on Brain, Behavior, and Emotion, Montreal, Canada, April 8.
303. 2014. The anatomy of violence: The biological roots of crime. Keynote address, Association of Psychological Science Annual Convention, San Francisco, May 23.
304. 2014. The anatomy of violence: The biological roots of crime. Invited speaker, Conference on Antisocial Behavior, Institute of Psychiatry, King’s College, London, June 20.

OTHER CONFERENCE PAPERS (first author only)

1. 1980: Classical conditioning and socialization - a biosocial interaction. Psychophysiology Society, London, England.
2. 1981: Cortical augmenting-reducing - modality specific? Psychophysiology Society, London, England.
3. 1986: P300 and psychopathy. Psychophysiology Society, London, England.
4. 1988: Evoked potential augmenting-reducing and smooth-pursuit eye movements in criminals and psychopaths. Society for Psychophysiological Research, San Francisco, California.
5. 1988: Evoked potential augmenting-reducing in psychopaths and criminals with impaired smooth-pursuit eye movements. Psychophysiology Society, London, England.
6. 1989: Interhemispheric transfer in schizophrenics, depressives, and normals with schizoid tendencies. International Congress on Schizophrenia Research, San Diego, California.

7. 1989: Relationship between electrodermal, cardiovascular, and cortical measures of arousal and orienting at age 15 and criminality at age 24. Society for Psychophysiological Research, New Orleans.
8. 1989: Relationships between tonic and phasic heart rate at age 15 and positive/negative schizophrenia at age 26. Society for Psychophysiological Research, New Orleans.
9. 1989: Electrodermal, cardiovascular, and cortical predictors at age 15 of criminality at age 24. Society for Research in Psychopathology, Miami, Florida.
10. 1989: Tonic and phasic heart rate at age 15 and positive/ negative schizophrenia at age 26. Psychophysiology Society, Bristol.
11. 1990: Reduced frontal area and poorer functioning in schizophrenics. Fifth Biennial Winter Workshop on Schizophrenia, Badgastein, Austria.
12. 1990: Structural and functional pre-frontal deficits in schizophrenia. Western Psychological Association, 70th Annual Convention, Los Angeles, April 26-29.
13. 1990: Psychophysiological predictors at age 15 of criminal behavior at age 24. Western Psychological Association, 70th Annual Convention, Los Angeles, April 26-29.

14. 1990: Neuroanatomical correlates of skin conductance orienting in normal humans: A magnetic resonance imaging study. Society for Psychophysiological Research, Boston, October 20.
15. 1990: Structural and functional pre-frontal deficits in schizophrenia. Society for Psychophysiological Research, Boston, October 20.
16. 1990: Reduced lateralization for verbal processes in adolescent psychopaths. Society for Research in Psychopathology, November 29-December 2.
17. 1990: Evidence for both structural and functional pre-frontal deficits in schizophrenia: Converging evidence from MRI, Neuropsychological, and Psychophysiological Measures. Society for Research in Psychopathology, November 29 - December 2.
18. 1991: Pre-frontal structural and functional deficits associated with schizotypal personality. 5th Biennial Meeting of the International Society for the Study of Individual Differences, Oxford, July 22-26.
19. 1991: Psychophysiological deficits in schizotypal personality disorder. Thirty-First Annual Meeting of the Society for Psychophysiological Research, Chicago, October 9-13.
20. 1992: The Schizotypal Personality Questionnaire: Genetics, Psychophysiology, Neuropsychology, and Gender Differences. Western Psychological Association, Portland, Oregon, April 30 - May 3.
21. 1992: Selective reductions in pre-frontal glucose metabolism in murderers assessed with positron emission tomography Society for Psychophysiological Research, San Diego, October 7-10.
22. 1993: Cognitive-perceptual, interpersonal, and disorganized features of schizotypal personality. International Congress on Schizophrenia, Colorado Springs, April 17-21.
23. 1993: Erratic skin conductance orienting and eye tracking deficits in schizotypals with cognitive-perceptual deficits. Society for Research in Psychopathology, Chicago, October 7-10.
24. 1994: Autonomic nervous system factors that protect against crime.. Thirty-fourth Annual Meeting of the Society for Psychophysiological Research, Atlanta, Georgia, October 5-9.
25. 1996: Autonomic nervous system factors at age 15 years which protect against crime development at age 29 years. International Society for Research in Child

and Adolescent Psychopathology, Santa Monica, CA, January 19-20.

26. 2000: Early educational and health enrichment at age 3-5 years enhances autonomic and central nervous system arousal and orienting at age 11 years. Society for Psychophysiological Research, San Diego, October 18-22.
27. 2008: Volume reductions in middle frontal and orbitofrontal gyral gray matter in antisocial personality disorder. Oral paper presentation, Society of Biological Psychiatry's 63rd Annual Scientific Convention. Washington DC, May 2.
28. 2009: Structural Brain Deformations in "Successful" and "Unsuccessful" Psychopaths. Symposium on "Neurobiological Approaches to the Study of Psychopathy", Society for the Scientific Study of Psychopathy, New Orleans, April 16-18.
29. 2011: Early Childhood Risk Factors for Psychopathic Personality in Adulthood: Findings from the Mauritius Child Health Project. Paper session on Developmental Characteristics of Psychopathy, 4th biennial meeting of the Society for the Scientific Study of Psychopathy, Montreal, Canada, May 20.
30. 2012: Reduced Amygdala Volumes in Chinese Psychopathic Murderers. Symposium, American Society for Criminology. Chicago, November 15.

## PUBLICATIONS

### Books

1. **Raine, A.** (1993) The psychopathology of crime: Criminal behavior as a clinical disorder. San Diego: Academic Press.
2. **Raine, A.**, Lencz, T. and Mednick, S.A. (Eds.) (1995). Schizotypal personality disorder. Cambridge: Cambridge University Press.
3. **Raine, A.**, Brennan, P., Farrington, D.P. and Mednick, S.A. (Eds.) (1997). Biosocial bases of violence. New York: Plenum.
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sensation seeking. *Criminology*

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#### UNDER REVIEW

1. Yang, Y., Gao, Y., Schug, R., Glenn, A., Peskin, M. and **Raine, A.** Biosocial contributions to antisocial behavior. In M. DeLisi and K. Beaver (eds.). The Life-Course of Antisocial Behavior: Aggression to Delinquency to Crime. Jones & Bartlett.
2. Chan, R. C. K., Li, X., Lai, M., Li, H., Wang, Y., Cui, J., Deng, Y., & **Raine, A.** Factor structure of Schizotypal Personality Questionnaire.
3. Liu, J., **Raine A.**, and Dalais, C. Malnutrition impairs social behavior in preschool children
4. Chen, C.Y., **Raine, A.**, Hung, D.L., and Lin, C.P. Abnormal White Matter Integrity in Rapists as Indicated by Diffusion Tensor Imaging.
5. Bezdjian, S., Tuvblad, C., Wyner, J.D., **Raine, A.**, and Baker, L.A. Motor impulsivity during childhood and adolescence: A longitudinal biometric analysis of the Go/NoGo task in twins aged 9-16 years old.
6. Tuvblad, C., Bezdjian, S., **Raine, A.**, and Baker, L.A. Parental affect and the development of psychopathic traits in children: a longitudinal analysis.
7. Tuvblad, C., Bezdjian, S., Wang, P., Owen, L., **Raine, A.**, and Baker, L.A. The development of psychopathic traits from childhood to adolescence.
8. Yang, Y., Narr, K.L., Baker, L.A., Joshi, S., Jahanshad, N., Gutman, B., Phillips, O.R., **Raine, A.** & Thompson, P.M. Frontal and Striatal Alterations Associated with Psychopathic Traits in Adolescents
9. Alyson K. Zalta, A.K., Chambless, D.L., Granger, D.A., **Raine, A.**, Glenn, A.L., and Lucki, I. The role of actual and perceived control in predicting subjective, biological, and cognitive responses to stress.
10. Schug, R.A., Baker, L.A., and **Raine, A.** Neuropsychological Characteristics of Schizotypy and Delinquency in Children
11. Tuvblad, C., **Raine, A.**, Yang, A. and Liu, J. Cross Culture Validation of the

Reactive-Proactive Aggression Questionnaire (RPQ) using four large samples from: US, Hong Kong, and China.

12. Tuvblad, C., Bezdjian, S., Wang, P., **Raine, A.**, and Baker, L.A. Psychopathic Personality Development from Ages 9 to 18: Genes and Environment
13. Baker, L.A., Tuvblad, C., Wang, P., Gomez, K., Bezdjian, S., Niv, S., and **Raine, A.** The Southern California Twin Register at the University of Southern California: III.
14. Chen, F.R., Gao, Y., Glenn, A., Niv, S., Portnoy, J., Schug, R., Yang, Y., and **Raine, A.** Biosocial bases of antisocial and criminal behavior. In A.R. Piquero (Ed.) Handbook of Criminological Theory Hoboken, N.J: Wiley-Blackwell.
15. Isen, J. Baker, L., **Raine, A.**, and Bezdjian, S. Unmasking the Association between Psychopathic Traits and Adaptive Functioning in Children
16. Lam, B.Y.H., Sun, L.N.N., Tang, V.W.K., **Raine, A.**, and Lee, T.M.C. Social cognition as the mediator of the relationship between neurocognition and symptomatology in schizophrenia patients.
17. Wang, P., Gao, Y., Isen, J., **Raine, A.**, Lozano, D.I., Baker, L.A. Genetic Covariance between Psychopathic Traits and Anticipatory Skin Conductance Responses to Threat: Evidence for a Potential Endophenotype.
18. Venables, P.H. and **Raine, A.** The factor structure of schizotypy – stability across time and instruments.
19. Gao Y., Tuvblad, C., Schell, A., Baker, L., and **Raine, A.** Skin Conductance Fear Conditioning Impairments and Aggression: A Longitudinal Study
20. Niv, S., Ashrafulla, S., Tuvblad, C., Joshi, A., **Raine, A.**, Leahy, R., and Baker L.A. Childhood EEG Frontal Alpha Power as a Predictor of Adolescent Antisocial Behavior: A Twin Heritability Study.
21. Niv, S., Syed Ashrafulla, S., Tuvblad, C., Joshi, A., Raine, A., Leahy, R., Baker, L.A. Relationships of Alpha, Beta, and Theta EEG Spectral Properties with Aggressive and Nonaggressive ASB in Children and Adolescents

IN PREPARATION

Articles: Invited

1. Glenn, A., Focquaert, F, and **Raine, A.** Agency, responsibility, free will, punishment, and the law. In T. Nadelhoffer (Ed.) The Future of Punishment and Retribution. Oxford: Oxford University Press.
2. Schug, R., Gao, Y. and **Raine, A.** Disorders of Defiance, Aggression, and Violence: Oppositional Defiant Disorder, Conduct Disorder and Antisocial Personality Disorder in Males. In C. Zaroff and R.C. D'Amato (eds.). Neuropsychology of Men. Springer.
3. Chen, C., Portnoy, J., and **Raine, A.** Biological treatments for crime: A nutritional approach. In Brian Boutwell, Kevin Beaver and J.C. Barnes (eds.) *The Nurture versus Biosocial Debate in Criminology*. Sage.
4. Schug, R. A. and **Raine, A.** Neurocriminology: Implications for forensic psychiatry. in R. Sadoff (ed.). Forensic Psychiatry: Historical Review, Current Issues, Future Directions. Oxford University Press

Articles: Others in preparation

1. Liu, J., **Raine, A.**, Venables, P.H., & Mednick, S. A. Early breastfeeding is linked to increased cognitive ability at age 3 and 11 years.
2. Portnoy, J., Chen, F., Gao, Y., Glenn, A.L., Niv, S., Peskin, M., Rudo-Hutt, A., Schug, R.A. Yang, Y., and **Raine, A.** Bio-social perspectives on sex, gender and crime. In W. McCarthy and R. Gartner (eds.). Oxford Handbook on Gender, Sex and Crime. Oxford: Oxford University Press.
3. Barkus, E. and **Raine, A.** Neuro-schizotypy and pseudo-schizotypy: A review.
4. Yang, Y. Wang, P., Baker, L.A., Narr, K.L., Joshi, S.H., Hafzalla, G., **Raine, A.**, and Thompson, P.M. Thicker Temporal Cortex Associated with a Developmental Propensity for Psychopathic Traits in Adolescents
5. Lam, B.Y.H., **Raine, A.**, and Lee, T.M.C. The relation between neurocognition and symptomatology in people with schizophrenia: Social cognition as the mediator.
6. Johnson, A., Glenn, A., and **Raine, A.** Antisocial personality disorder: A review. Current Psychiatry Reports.
7. Portnoy, J. and **Raine, A.** Biological contributions to criminological research.
8. Schug, R.A., **Raine, A.**, Han, C., and Liu, J.H. Psychopathy and Forensic Characteristics in a Sample of Chinese Homicide Offenders

9. Rudo-Hutt, A., Portnoy, J., Chen, F. and **Raine, A.** Paradigm shift in the past 10 years. In M. DeLisi (ed). Handbook of Biosocial Criminology.
10. Dhamija, D., Tuvblad, C., Dawson, M.E., **Raine, A.**, and Baker, L.A. Heritability of Startle Reactivity and Affect Modulated Startle
11. Chen, F.R., **Raine, A.**, Soyfer, L. and Grainger, D. Stability of Comorbid Behavior Problems in Early Adolescence: Synchronicity with Trait-like Adrenocortical Activity and Autonomic Arousal
12. Chen, F.R., **Raine, A.**, Baker, A. and Fung, A. Decomposing Ethnic Differences in Proactive and Reactive Aggression