

CURRICULUM VITAE

Stefano Signoretti

NAME AND ADDRESS

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INSTITUTION

Division of Neurosurgery,
Department of Emergency and Urgency
Azienda Sanitaria Locale Roma2 (A.S.L. Roma2)
Ospedale S. Eugenio/C.T.O.
Piazzale dell'Umanesimo, 10
00144 Rome, Italy

PERSONAL DATA

Date of birth: May 24th 1968
Place of birth: Rome, Italy
Citizenship: Italian

PRESENT POSITION: Director and Chief of the Division of Neurosurgery of S. Eugenio and C.T.O. Hospitals A.S.L.Roma2, Rome, Italy.

DEGREES, CERTIFICATIONS, PROFESSIONAL BACKGROUND

1986: B.A. with full marks (Liceo Classico "Villa Sora"), Rome, Italy.

1992: Graduated in Medicine (M.D. Degree) with maximum score (110 points out of 110) and honors at the State University of Rome Tor Vergata, Rome, Italy.

1992 : Italian license and certification to practice as a physician.

1992: Internship: S. Eugenio Hospital and C.T.O. Hospital under the supervision of the State University of Rome Tor Vergata, Rome, Italy.

1993 : Lieutenant: Italian Air Force Medical Corp.

1993 : Resident physician in Neurosurgery at the State University of Rome Tor Vergata, Rome, Italy

1994 : Certificate in Medical Territorial Traumatic Emergency

1996: Certificate in Stereotactic Radiosurgery with Gamma Knife (Scuola Medico-Ospedaliera, Regione Lazio, Italy)

1998 : Certificate and license to practice Neurosurgery.

1997-2001: Clinical and Experimental Post-doc Fellowship in Traumatic Brain Injury (Medical College of Virginia, Richmond, VA)

2001-2018: Assistant Professor of Neurosurgery: Division of Neurosurgery, Department of Neurosciences, Head and Neck surgery, Azienda Ospedaliera S. Camillo-Forlanini, Rome, Italy

2002-2008: Teaching Professor of Neurocritical Care, State University of Rome “La Sapienza”, Rome, Italy. Graduate School 1st level Master in Critical Care

2004-2007: Teaching Professor of Sport Neurotraumatology (University of Rome “Tor Vergata”, Rome Italy)

2004-2011: Teaching Professor of Neurosurgery at State University of Rome Tor Vergata, Medical School

2010-18: Director of Neurotraumatology Program (Azienda Ospedaliera San Camillo-Forlanini)

2013: National Academic qualification as “Associate and Full Professor” of Neurosurgery

2012-2014: Chief of Neurotrauma Section with the Italian Society of Neurosurgery (S.I.N.Ch)

2014-2018: Teaching Professor at the “Scuola Medica Ospedaliera” for the National Program of Continuous Formation in Health Sciences; course n° 471-109971.

2014-2016: Secretary of Neurotrauma Section with the Italian Society of Neurosurgery (S.I.N.Ch)

2016-2018: Chief of Neurotrauma Section with the Italian Society for Neurosurgery (S.I.N.Ch)

2016: Senior Consultant for the Italian Ministry of Health with the “Medico-Legal Office”.

2016- : Member of the Sport Concussion Common Data Elements (CDE Working Group) with the National Institute of Neurological Disorders and Stroke (NINDS), the National Institutes of Health (NIH) and U.S. Department of Defense (DOD) <https://www.commondataelements.ninds.nih.gov>

2018- : Director and Chief of the Division of Neurosurgery of S. Eugenio and CTO Hospitals ASLRoma2.

EXPERIMENTAL AND CLINICAL RESEARCH ACTIVITY

- 1) Energetic metabolism, molecular mechanisms and biochemical evaluation of cerebral tissue damages in rodents, in various models of traumatic brain injury (TBI) and incomplete cerebral ischemia-reperfusion.
- 2) Electro-physiologic investigation of post-traumatic excitatory amino acids (EAA) release in rat cerebral tissue following TBI.
- 3) Continuous monitoring of ICP, ABP, ECG, EEG, and Ventilation parameters following experimental TBI: management of cerebral perfusion pressure.
- 4) Biochemical markers analysis for the evaluation of oxygen-free radicals induced damage, following ischemia/re-perfusion phenomena and TBI.
- 5) Therapeutic intervention in diffuse experimental traumatic brain injury to ameliorate energetic metabolism and prevent mitochondrial dysfunction through intrathecal and intravenous administration of Cyclosporine A.

All these studies have been performed jointly with:

- Chair of Chemistry and Chair of Physiology - Dept. of Experimental Medicine and Biochemical Sciences - University of Rome "Tor Vergata", Rome, Italy;
 - Dept. of Biochemical and Pharmacological Sciences, University of Catania, Catania, Italy
- 5) Clinical investigation of the nature of post-traumatic "Brain Swelling" as regard to brain edema and vascular engorgement, via evaluation of cerebral blood flow in severely head-injured patients using Xenon-CT and modern MRI techniques.
 - 6) Clinical study of the biochemical damages and metabolic perturbations following severe TBI using proton MR-spectroscopy analysis.
 - 7) Multi-center controlled clinical trial to evaluate the efficacy of Xenon-CT technique for quantitative determination of cerebral blood flow and prediction of the presence and localization of cerebral infarction.
 - 8) Clinical and experimental investigation on the pathophysiology of "Concussive Brain Injury"
 - 9) Clinical investigation on Intracranial Hypertension and Hydrocephalus pathophysiology and treatment.
 - 10) Combination of skull base approaches and anatomic and morphometric studies on cadavers and animals to optimize surgical exposure.

All these studies have been performed jointly with:

- Department of Radiology, Division of Radiation Physics and Biology: Medical College of Virginia, Virginia-Commonwealth-University, Richmond, VA, US.
- Division of Neurosurgery, Medical College of Virginia, Virginia-Commonwealth-University, Richmond, VA, US
- Division of Neurosurgery, U.C.L.A., Los Angeles, CA, U.S.
- Division of Clinical Neurosciences, University of Southampton School of Medicine, Southampton, United Kingdom.
- University of Cambridge Clinical School. Addenbrooke's Hospital. Cambridge, UK.
- European Surgical Institute, Hamburg-Norderstedt, Germany.

SOCIETY MEMBERSHIPS

Italian Society of Neurosurgery (S.i.N.Ch.)

European Association of Neurosurgical Societies (E.A.N.S.)

CONSULTANTSHIPS

2001-: Consultant Neurosurgeon at the Rome American Hospital, R.A.H., Rome Italy.

2001-2009: Consultant Neurosurgeon at the Neuro-Rehabilitation Center Ospedale S. Giovanni Battista Cavalieri di Malta A.C.I.S.M.O.M., Rome, Italy.

2009-2014: Consultant Neurosurgeon with the Italian Boxe Federation.

2012-2014: Consultant Neurosurgeon with the Italian Rugby Federation.

2009- Peer Reviewer: Journal of Neurotrauma

INTERNATIONAL LECTURES AND SEMINARS (INVITED SPEAKER)

1. Signoretti S.

Oxidative Stress in Diffuse Impact Acceleration injury. Traumatic Brain injury seminars - Spring 1999. Medical College of Virginia. Virginia Commonwealth University, Richmond, VA. March 10th 1999.

2. Signoretti S.

Distinguishing between cellular and vasogenic edema in head injury patients using Magnetic Resonance Spectroscopy. XI International Symposium on Brain Oedema and Mechanisms of Cellular Injury. Newcastle upon Tyne, UK. June 6th 1999.

3. Signoretti S.

Changes of cerebral energy metabolism and lipid peroxidation after diffuse brain injury. 11th European congress of Neurosurgery E.A.N.S., Copenhagen, Denmark September 19th, 1999.

4. Signoretti S.

Mitochondrial Dysfunction assessed by NAA reduction in Traumatic Brain Injury. 17th Annual National Neurotrauma Society Meeting, Miami, Florida October 22th, 1999

5. Signoretti S.

In vivo quantification of absolute NAA levels. 85th Scientific Assembly of Radiological Society of North America, Chicago, Illinois, November 28th, 1999.

6. Signoretti S.

Diffuse brain injury complicated by acute subdural hematoma in the rodent: the effect of early or delayed surgical evacuation. 11th International Symposium on Intracranial Pressure and Brain Monitoring, Cambridge, UK, 22th July 2000.

7. Signoretti S.

Assessment of Neurochemical damage in Head Injured Patients. 2001 American Association of Neurological Surgeons Annual Meeting. Toronto, Ontario, Canada, April 21th, 2001.

8. Signoretti S.

N-Acetylaspartate as a measure of injury severity and mitochondrial dysfunction following diffuse Traumatic brain injury. Traumatic Brain injury seminars - Spring 2001. Medical College of Virginia. Virginia Commonwealth University, Richmond, VA. February 21st 2001.

9. Signoretti S.

Anterior petrosectomy approach for petroclival lesions. 51st CNS Annual Meeting. San Diego, California September 29th, 2001

10. Signoretti S.

Monitoring cerebral metabolism in traumatically injured brain: 10 years of experience: from the bench top to the clinical setting. 3rd Joint meeting of the German Society of Neurosurgery with the Italian Society of Neurosurgery.“ DGNC 2008, Wurzburg, 2008. (Germany)

11. Signoretti S.

Post-traumatic hydrocephalus: Identifying shunt responders. International Focus Conference: Hot topics in Craniocerebral Trauma. Roma, September 23rd 2010, (Italy).

12. Signoretti S.

The metabolic recovery of the concussed brain. 14th Congress of European Neurosurgical Societies, Rome, Italy, October 9th 2011.

13. Signoretti S.

The pathophysiology of brain edema in focal traumatic brain injury. 2nd Annual Road Safety Congress in collaboration with the World Health Organization (WHO). Mashad, Iran, February 13th, 2013.

14. Signoretti S

Post-traumatic Hydrocephalus.

University of Cambridge Clinical School. Addenbrooke's Hospital. Cambridge, UK. March 5th 2015.

15. Signoretti S.

The Second Impact Syndrome: facts, myths and scientific evidence. Breakfast seminar: Prevention of Traumatic Brain Injury.

15th Interim meeting of the World Federation of Neurological Societies. Rome 11th September, 2015

16. Signoretti S.

The Second Impact Syndrome in Sport Neurotraumatology. Congress of the European Association of the Neurosurgical Societies, Athens 5th September, 2016

17. Signoretti S.

Severe traumatic brain injury: looking for solutions finding new problems?

4th Emirates Society of Neurological Surgeons Conference, Dubai, United Arab Emirates. 17-19 novembre 2016.

18. Signoretti S.

Sport-related concussion: developing common data elements.

17th Congress of the European Association of Neurosurgical Societies, Venice 1-5 October, 2017

19. Signoretti S.

Fission or fusion: the destiny of mitochondria following traumatic brain injury.

International Conference on recent advances on Neurotraumatology. The World Federation Neurotrauma Committee. ICRAN-2018. Naples, 20-22 June, 2018.

PUBLICATIONS

1. SIGNORETTI S., Vagnozzi R, Tavazzi B, Lazzarino G (2019, february). The pathophysiology of concussive brain injury. In: Jeff Victoroff, Erin Bigler. **TEXTBOOK OF CONCUSSION AND TRAUMATIC ENCEPHALOPATHY**. Cambridge University Press. p. 138-152; doi: 10.1017/9781139696432.00
2. THE SPORT-RELATED CONCUSSION CDE WORKING GROUP. *The National Institute of Neurological Disorders and Stroke (N.I.N.D.S.) and Department of Defense (D.O.D.)*. Sport-Related Concussion Common Data Elements. Version 1.0 Recommendations. **JOURNAL OF NEUROTRAUMA** 2018 Jul 23 doi: 10.1089/neu.2018.5643
3. Di Pietro V, Lazzarino G, Amorini AM , SIGNORETTI S, Hill LJ , Porto E, Tavazzi B , Belli A, Lazzarino G. Fusion or fission: the destiny of mitochondria in different severities of traumatic brain injury. **NATURE-SCIENTIFIC REPORTS**, 2017 Aug 23;7 (1): 9189. DOI:10.1038/s41598-017-09587-2
4. SIGNORETTI S., Tavazzi B., Lazzarino G., Vagnozzi R. The pathophysiology of concussive brain injury. In: **CONCUSSIONS IN ATHLETICS**. Chapter 8, pp 101-126. ISBN: 978-1-53610-642-8 Editors: Eric E. Hall & Caroline J. Ketcham © 2017 Nova Science Publishers, Inc.
5. Amorini AM, Lazzarino G, Di Pietro V, SIGNORETTI S, Lazzarino G, Belli A, Tavazzi B. Severity of experimental traumatic brain injury modulates changes in concentrations of cerebral free amino acids. **JOURNAL OF CELLULAR AND MOLECULAR MEDICINE** 2016 Oct 3. doi: 10.1111/jcmm.12998.
6. Amorini AM, Lazzarino G, Di Pietro V, SIGNORETTI S, Vagnozzi R, Lazzarino G, Belli A, Tavazzi B. Metabolic, enzymatic and gene involvement in cerebral glucose dysmetabolism after traumatic brain injury. **BBA-MOLECULAR BASIS OF DISEASE**. 2016 Apr;1862(4):679-87. doi: 10.1016/j.bbadis.2016.01.023.
7. Regelsberger J, Eicker S, Siasios I, Hänggi D, Kirsch M, Horn P, Winkler P, SIGNORETTI S., Fountas K, Dufour H, Barcia JA, Sakowitz O, Westermaier T, Sabel M, Heese O (2015). In vivo porcine training model for cranial

- neurosurgery. **NEUROSURGICAL REVIEW**, vol. 21, ISSN: 0344-5607, doi: 10.1007/s10143-014-0572-4
8. Amorini AM, Nociti V, Petzold A, Gasperini C, Quartuccio E, Lazzarino G, Di Pietro V, Belli A, SIGNORETTI S., Vagnozzi R, Lazzarino G, Tavazzi B. (2014). Serum lactate as a novel potential biomarker in multiple sclerosis. **BIOCHIMICA ET BIOPHYSICA ACTA**, vol. 1842; p. 1137-1143, ISSN: 0006-3002, doi: 10.1016/j.bbadis.2014.04.005
 9. Czosnyka M, Schuhmann MU, SIGNORETTI S., Czosnyka Z, Pickard J D (2014). Monitoring of intracranial pressure and assessment of cerebrospinal fluid dynamics. In: Daniele Rigamonti. **ADULT HYDROCEPHALUS**. p. 147-160, Baltimore, MD,: Daniele Rigamonti, ISBN/ISSN: 978-1-107-03177-7
 10. Di Pietro V, Lazzarino G, Amorini AM, Tavazzi B, D'Urso S, Longo S, Vagnozzi R, SIGNORETTI S., Clementi E, Giardina B, Lazzarino G, Belli A (2014). Neuroglobin expression and oxidant/antioxidant balance after graded traumatic brain injury in the rat. **FREE RADICAL BIOLOGY & MEDICINE**, vol. 69; p. 258-264, ISSN: 0891-5849, doi: 10.1016/j.freeradbiomed.2014.01.032
 11. Stocchetti N, Picetti E, Berardino M, Buki A, Chesnut RM, Fountas KN, Horn P, Hutchinson PJ, Iaccarino C, Koliass AG, Koskinen LO, Latronico N, Maas AI, Payen JF, Rosenthal G, Sahuquillo J, SIGNORETTI S., Soustiel JF, Servadei F. (2014). Clinical applications of intracranial pressure monitoring in traumatic brain injury: Report of the Milan consensus conference. **ACTA NEUROCHIRURGICA**, vol. May, ISSN: 0001-6268, doi: 10.1007/s00701-014-2127-4
 12. Di Pietro V, Amorini AM, Tavazzi B, Vagnozzi R, Logan A, Lazzarino G, SIGNORETTI S., Lazzarino G, Belli A (2014). The molecular mechanisms affecting N-acetylaspartate homeostasis following experimental graded traumatic brain injury. **MOLECULAR MEDICINE**, vol. 24; p. 147-157, ISSN: 1076-1551, doi: 10.2119/molmed.2013.00153.
 13. SIGNORETTI S., Tavazzi B, Lazzarino G, Vagnozzi R (2014). The Relevance of Assessing Cerebral Metabolic Recovery for a Safe Return to Play Following Concussion. In: SM Slobounov, WJ Sebastianelli. **CONCUSSIONS IN ATHLETICS FROM BRAIN TO BEHAVIOR**. p. 89-112, NEW YORK: Springer, ISBN/ISSN: 978-1-4939-0294
 14. Di Pietro V, Amorini AM, Tavazzi B, Hovda DA, SIGNORETTI S., Giza CC, Lazzarino G, Vagnozzi R, Lazzarino G, Belli A (2013). Potentially neuroprotective gene modulation in an in vitro model of mild traumatic brain injury. **MOLECULAR AND CELLULAR BIOCHEMISTRY**, vol. 375; p. 185-198, ISSN: 0300-8177, doi: 10.1007/s11010-012-1541-2
 15. Chieragato A, SIGNORETTI S. (2012). Trauma Cranico. In: Chiara Osvaldo, Gordini Giovanni, Nardi Giuseppe, Sanson Gianfranco. **TRAUMA CARE. La cura definitiva del trauma**. p. 99-123, Milano: Elsevier Srl, ISBN/ISSN: 978-88-214-2696-4

16. Vagnozzi R, SIGNORETTI S., Floris R, Marziali S, Manara M, Amorini AM, Belli A, Di Pietro V, Lazzarino G, Tavazzi B (2012). Decrease in N-Acetylaspartate Following Concussion May Be Coupled to Decrease in Creatine. **JOURNAL OF HEAD TRAUMA REHABILITATION**, ISSN: 0885-9701, doi: 10.1097/HTR.0b013e3182795045

17. Lazzarino G, Vagnozzi R, SIGNORETTI S., Manara M, Floris R, Amorini AM, Ludovici A, Marziali S, McIntosh TK, Tavazzi B (2012). The Importance of Restriction from Physical Activity in the Metabolic Recovery of Concussed Brain. In: Amit Agrawal. **BRAIN INJURY – PATHOGENESIS, MONITORING, RECOVERY AND MANAGEMENT**. p. 501-522, , ISBN/ISSN: 978-953-51-0265-6, doi: 10.5772/27951

18. SIGNORETTI S., Vagnozzi R, Tavazzi B, Lazzarino G (2010). Biochemical and neurochemical sequelae following mild traumatic brain injury: summary of experimental data and clinical implications. **JOURNAL OF NEUROSURGERY COLLECTIONS**, June 2012, Volume 116, Issue 6

19. Marmarou A, Fatouros PP, Barzó P, Portella G, Yoshihara M, Tsuji O, Yamamoto T, Laine F, SIGNORETTI S., Ward JD, Bullock MR, Young HF (2000). The contribution of edema and cerebral blood volume to traumatic brain swelling in head injury patient. **JOURNAL OF NEUROSURGERY COLLECTIONS**, June 2012, Volume 116, Issue 6

20. SIGNORETTI S., Lazzarino G, Tavazzi B, Vagnozzi R. (2011). The Pathophysiology of Brain Concussion. **AMERICAN JOURNAL OF PHYSICAL MEDICINE & REHABILITATION**, vol. 3; p. S359-S368, ISSN: 0894-9115, doi: 10.1016/j.pmrj.2011.07.018

21. SIGNORETTI S., Di Pietro V, Vagnozzi R, Lazzarino G, Amorini AM, Belli A, D'Urso S, Tavazzi B. (2010). Transient alterations of creatine, creatine phosphate, N-acetylaspartate and high-energy phosphates after mild traumatic brain injury in the rat. **MOLECULAR AND CELLULAR BIOCHEMISTRY**, vol. 333; p. 269-277, ISSN: 0300-8177, doi: 10.1007/s11010-009-0228-9

22. Vagnozzi R, SIGNORETTI S., Cristofori L, Alessandrini F, Floris R, Isgrò E, Ria A, Marziale S, Zoccatelli G, Tavazzi B, Del Bolgia F, Sorge R, Broglio SP, McIntosh TK, Lazzarino G. (2010). Assessment of metabolic brain damage and recovery following mild traumatic brain injury: a multicenter, proton magnetic resonance spectroscopy study in concussed athletes. **BRAIN**, vol. 133; p. 3232-3242, ISSN: 0006-8950, doi: 10.1093/brain/awq200

23. SIGNORETTI S., Vagnozzi R, Tavazzi B, Lazzarino G (2010). Biochemical and neurochemical sequelae following mild traumatic brain injury: summary of

- experimental data and clinical implications. **NEUROSURGICAL FOCUS**, vol. 29; p. E1-E12, ISSN: 1092-0684, doi: DOI: 10.3171/2010.9.FOCUS10183)
24. Broglio SP, Vagnozzi R, Sabin M, SIGNORETTI S., Tavazzi B, Lazzarino G. (2010). Concussion occurrence and knowledge in Italian football (soccer). **JOURNAL OF SPORTS SCIENCE AND MEDICINE**, vol. 9; p. 418-430, ISSN: 1303-2968
 25. Vagnozzi R, SIGNORETTI S., Tavazzi B, Verzeletti A, Lazzarino G, Casasco M (2010). Cerebral concussion in sport: new diagnostic prospects for a return to sporting activity. **MEDICINA DELLO SPORT**, vol. 63; p. 441-442, issn: 0025-7826
 26. Vagnozzi R, SIGNORETTI S., Tavazzi B, Verzeletti A, Lazzarino G, Casasco M (2010). La Concussione Cerebrale. **MEDICINA DELLO SPORT**, vol. 63; p. 1-23, ISSN: 0025-7826
 27. Vagnozzi R, SIGNORETTI S., Tavazzi B, Lazzarino G (2009). La concussione cerebrale nello sport: nuove prospettive diagnostiche per il ritorno all'attività sportiva. **MEDICINA DELLO SPORT**, vol. 62; p. 525-527, ISSN: 0025-7826
 28. Vagnozzi R, SIGNORETTI S., Tavazzi B, Floris R, Ludovici A, Marziali S, Tarascio G, Amorini AM, Di Pietro V, Delfini R Lazzarino G. (2008). Temporal window of metabolic brain vulnerability to concussion: a pilot 1H-MRS study in concussed athletes. Part III. **NEUROSURGERY**, vol. 62; p. 1286-1295, ISSN: 0148-396X, doi: 10.1227/01.NEU.0000316421.58568.AD
 29. SIGNORETTI S., Marmarou A, Aygok GA, Fatouros PP, Portella G, Bullock RM. (2008). Assessment of mitochondrial impairment in traumatic brain injury using high-resolution proton magnetic resonance spectroscopy. **JOURNAL OF NEUROSURGERY**, vol. 108; p. 42-52, ISSN: 0022-3085, doi: 10.3171/JNS/2008/108/01/
 30. Tavazzi B, Vagnozzi R, SIGNORETTI S., Amorini AM, Belli A, Cimatti M, Delfini R, Di Pietro V, Finocchiaro A, Lazzarino G. (2007). Temporal window of metabolic brain vulnerability to concussions: oxidative and nitrosative stresses. Part II. **NEUROSURGERY**, vol. 61; p. 390-395, ISSN: 0148-396X, doi: 10.1227/01.NEU.0000255525.34956.3F
 31. Vagnozzi R, Tavazzi B, SIGNORETTI S., Amorini AM, Belli A, Cimatti M, Delfini R, Di Pietro V, Finocchiaro A, Lazzarino G. (2007). Temporal window of metabolic brain vulnerability to concussions: mitochondrial-related impairment. Part I. **NEUROSURGERY**, vol. 61; p. 379-388, ISSN: 0148-396X, doi: 10.1227/01.NEU.0000280002.41696.D8
 32. Marmarou A, SIGNORETTI S., Aygok G, Fatouros P, Portella G (2006). Traumatic brain edema in diffuse and focal injury: cellular or vasogenic?. **ACTA NEUROCHIRURGICA**. Supplementum, vol. 96; p. 24-29, ISSN: 0065-1419, doi: 10.1007/3-211-30714-1_6

33. Belli A, Sen J, Petzold A, Russo S, Kitchen N, Smith M, Tavazzi B, Vagnozzi R, SIGNORETTI S., Amorini AM, Bellia F, Lazzarino G (2006). Extracellular N-acetylaspartate depletion in traumatic brain injury. **JOURNAL OF NEUROCHEMISTRY**, vol. 96; p. 861-869, ISSN: 0022-3042, doi: DOI: 10.1111/j.1471-4159.2005.03602.x
34. Marmarou A, SIGNORETTI S., Fatouros PP, Portella G, Aygok GA, Bullock MR. (2006). Predominance of cellular edema in traumatic brain swelling in patients with severe head injuries. **JOURNAL OF NEUROSURGERY**, vol. 104; p. 720-730, ISSN: 0022-3085, doi: DOI:10.3171/jns.2006.104.5.720
35. Tavazzi B, SIGNORETTI S., Lazzarino G, Amorini AM, Delfini R, Cimatti M, Marmarou A, Vagnozzi R (2005). Cerebral oxidative stress and depression of energy metabolism correlate with severity of diffuse brain injury in rats. **NEUROSURGERY**, vol. 56; p. 582-589, ISSN: 0148-396X, doi: 10.1227/01.NEU.0000156715.04900.E6
36. Vagnozzi R, SIGNORETTI S., Tavazzi B, Cimatti M, Amorini AM, Donzelli S, Delfini R, Lazzarino G (2005). Hypothesis of the postconcussive vulnerable brain: experimental evidence of its metabolic occurrence. **NEUROSURGERY**, vol. 57; p. 164-171, ISSN: 0148-396X, doi: 10.1227/01.NEU.0000163413.90259.85
37. Marmarou A, SIGNORETTI S., Fatouros P, Aygok GA, Bullock R (2005). Mitochondrial injury measured by proton magnetic resonance spectroscopy in severe head trauma patients. **ACTA NEUROCHIRURGICA**. Supplementum, vol. 95; p. 149-151, ISSN: 0065-1419, doi: 10.1007/3-211-32318-X_32
38. Cristofori L, Tavazzi B, Gambin R, Vagnozzi R, SIGNORETTI S., Amorini AM, Fazzina G, Lazzarino G. (2005). Biochemical analysis of the cerebrospinal fluid: evidence for catastrophic energy failure and oxidative damage preceding brain death in severe head injury: a case report. **CLINICAL BIOCHEMISTRY**, vol. 38; p. 97-100, ISSN: 0009-9120, doi: 10.1016/j.clinbiochem.2004.09.013
39. SIGNORETTI S., Marmarou A, Tavazzi B, Dunbar J, Amorini AM, Lazzarino G, Vagnozzi R. (2004). The protective effect of cyclosporin A upon N-acetylaspartate and mitochondrial dysfunction following experimental diffuse traumatic brain injury. **JOURNAL OF NEUROTRAUMA**, vol. 21; p. 1154-1167, ISSN: 0897-7151, doi: 10.1089/neu.2004.21.1154
40. Sawauchi S, Marmarou A, Beaumont A, SIGNORETTI S., Fukui S. (2004). Acute subdural hematoma associated with diffuse brain injury and hypoxemia in the rat: effect of surgical evacuation of the hematoma. **JOURNAL OF NEUROTRAUMA**, vol. 21; p. 563-573, ISSN: 0897-7151, doi: 10.1089/089771504774129892
41. Lazzarino G, Amorini AM, Fazzina G, Vagnozzi R, SIGNORETTI S., Donzelli S, Di Stasio E, Giardina B, Tavazzi B (2003). Single-sample preparation for simultaneous cellular redox and energy state determination. **ANALYTICAL**

BIOCHEMISTRY, vol. 322; p. 51-59, ISSN: 0003-2697, doi: 10.1016/j.ab.2003.07.013

42. Fukui S, SIGNORETTI S., Dunbar JG, Marmarou A (2003). The effect of cyclosporin A on brain edema formation following experimental cortical contusion. **ACTA NEUROCHIRURGICA**. Supplementum, vol. 86; p. 301-303, ISSN: 0065-1419
43. SIGNORETTI S., Marmarou A, Fatouros P, Hoyle R, Beaumont A, Sawauchi S, Bullock R, Young H (2002). Application of chemical shift imaging for measurement of NAA in head injured patients. **ACTA NEUROCHIRURGICA**. Supplementum, vol. 81; p. 373-375, ISSN: 0065-1419
44. Sawauchi S, Beaumont A, SIGNORETTI S., Tomita Y, Marmarou C, Marmarou A. (2002). Diffuse brain injury complicated by acute subdural hematoma in the rodents: the effect of early or delayed surgical evacuation. **ACTA NEUROCHIRURGICA**. Supplementum, vol. 81; p. 243-244, ISSN: 0065-1419
45. Sawauchi S, Beaumont A, SIGNORETTI S., Tomita Y, Dunbar J, Marmarou A. (2002). Diffuse brain injury complicated by acute subdural hematoma and secondary insults in the rodents: the effect of surgical evacuation. **ACTA NEUROCHIRURGICA**. Supplementum, vol. 81; p. 241-242, ISSN: 0065-1419
46. SIGNORETTI S., Marmarou A, Tavazzi B, Lazzarino G, Beaumont A, Vagnozzi R. (2001). N-Acetylaspartate reduction as a measure of injury severity and mitochondrial dysfunction following diffuse traumatic brain injury. **JOURNAL OF NEUROTRAUMA**, vol. 18; p. 977-991, ISSN: 0897-7151, doi: 10.1089/08977150152693683
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