

**Edoardo Spina**

**CURRICULUM VITAE**

## **DATI PERSONALI**

Luogo di nascita: Castellammare di Stabia (NA)

Data di nascita: 21 febbraio 1956

Residenza: Via Nuova Panoramica dello Stretto 1020, Complesso “Il Parnaso”, 98168 Messina

Stato civile: coniugato, due figli.

## **TITOLI ACCADEMICI**

1981: Laurea in Medicina e Chirurgia presso l'Università di Messina.

1981: Abilitazione all'esercizio della professione di Medico-Chirurgo presso l'Università di Messina.

1985: Specializzazione in Neurologia presso l'Università di Messina.

1987: PhD (Dottorato di ricerca) in Farmacologia Clinica presso il Karolinska Institute di Stoccolma.

1991: Specializzazione in Psichiatria presso l'Università di Messina.

1998: Professore Associato di Farmacologia presso la Facoltà di Medicina e Chirurgia dell'Università di Messina.

2004: Idoneo al ruolo di Professore Universitario di I fascia per il Settore Scientifico- Disciplinare BIO/14 – Farmacologia

2005: Professore Straordinario di Farmacologia presso la Facoltà di Medicina e Chirurgia dell'Università di Messina.

2008: Professore Ordinario di Farmacologia presso la Facoltà di Medicina e Chirurgia dell'Università di Messina.

## **CURRICULUM PROFESSIONALE**

Marzo 1983-Gennaio 1987: borsista e quindi ricercatore presso il Dipartimento di Farmacologia Clinica dell'Ospedale Universitario di Huddinge, Istituto Karolinska, Stoccolma, Svezia.

Gennaio-Marzo 1987: professore visitante di psicofarmacologia presso il Dipartimento di Farmacologia e Psichiatria dell'Università di Extremadura, Badajoz, Spagna.

Aprile 1987-Ottobre 1998: Assistente e, da Aprile 1995, Aiuto di Psichiatria presso i Servizi di Salute Mentale dell'Azienda USL 5 di Messina (ex USL 41).

Giugno 1987-Ottobre 1998: Collaboratore volontario presso l'Istituto di Farmacologia dell'Università di Messina.

Novembre 1998-Maggio 2005: Professore Associato di Farmacologia, Settore Scientifico-Disciplinare BIO/14 ex E07X, presso l'Istituto di Farmacologia della Facoltà di Medicina e Chirurgia dell'Università di Messina e, dal 2001, presso la Sezione di Farmacologia del Dipartimento Clinico Sperimentale di Medicina e Farmacologia dell'Università di Messina.

Giugno 2005: Professore Straordinario di Farmacologia, Settore Scientifico-Disciplinare BIO/14, presso la Sezione di Farmacologia del Dipartimento Clinico Sperimentale di Medicina e Farmacologia dell'Università di Messina.

### **Posizione ed incarichi attuali**

- Professore Ordinario di Farmacologia presso il Dipartimento di Medicina Clinica e Sperimentale dell'Università di Messina.
- Coordinatore del Corso di Laurea in Medicina e Chirurgia dell'Università di Messina (da ottobre 2018).
- Responsabile f.f. (da ottobre 2016 a ottobre 2020) e Responsabile (da novembre 2020) dell'Unità Operativa Semplice Dipartimentale di Farmacologia Clinica dell'Azienda Ospedaliera Policlinico Universitario di Messina.
- Responsabile del Centro Referente per la Segnalazione Spontanea Organizzata della Regione Sicilia (da ottobre 2016)
- Responsabile scientifico del Centro Regionale di Farmacovigilanza, Regione Sicilia (da ottobre 2016)
- Responsabile aziendale di farmacovigilanza, Azienda Ospedaliera Policlinico Universitario di Messina (da ottobre 2016)

## **ATTIVITA' SCIENTIFICA**

Svolge attività di ricerca nel settore della neuropsicofarmacologia clinica, con particolare riferimento al metabolismo ed alla farmacocinetica degli psicofarmaci. E' autore di 254 pubblicazioni su riviste scientifiche indicizzate, di 3 libri, di 28 capitoli di libro e di oltre 400 abstracts relativi a partecipazioni a congressi nazionali ed internazionali.

H index: **59**

Numero totale di citazioni: **10226** (22 settembre 2021)

Le principali linee di ricerca sono:

- Farmacocinetica degli antidepressivi, degli antipsicotici e degli antiepilettici
- Interazioni farmacocinetiche degli psicofarmaci
- Farmacogenetica e personalizzazione della terapia in psichiatria
- Monitoraggio terapeutico degli psicofarmaci
- Farmacovigilanza, farmacoutilizzazione e farmacoepidemiologia in psichiatria
- Studi clinici sull'efficacia e sulla tollerabilità degli psicofarmaci in pazienti con patologie psichiatriche

### **Direzione strutture di ricerca**

- Dal 2005 al 2010 responsabile scientifico (insieme ai Proff. A.P. Caputi e S. Cuzzocrea) della Linea di ricerca Neurofarmacologia-Neuroepidemiologia-Farmacovigilanza dell'IRCCS Istituto Neurolesi "Bonino-Pulejo" di Messina.
- Dal 2013 ad oggi coordinatore del Gruppo di Lavoro di Neuropsicofarmacologia della Società Italiana di Farmacologia (insieme ai Proff. M. Riva, R. Molteni).

### **Finanziamenti**

#### *Pubblici*

- Borsa di studio della Fondazione "Bonino-Pulejo" nel 1982.
- EU Biomed 1 (contratto BMH1-CT94-1622) per il triennio 1995-1997. Titolo: Early identification factors responsible for the interindividual variability in drug metabolism in man. Coordinatore: Prof. G.M. Pacifici, Università di Pisa.

- EU Biomed 2 (contratto BMH4-CT96-0291) per il triennio 1996-1998. Titolo: Metabolism and clinical effects of psychotropic drugs: from molecular genetics to patient care. Coordinatore: Prof. L. Bertilsson, Istituto Karolinska, Stoccolma.
- Istituto Superiore di Sanità, 1996-1998: Progetto “Proprietà fisico-chimiche dei medicinali e loro sicurezza d’uso” Coordinatore: Prof. E. Perucca, Università di Pavia.
- PRA 1999: Progetto “Valutazione dell’utilità della fenotipizzazione e della genotipizzazione per il citocromo P450 2D6 nella risposta ai farmaci antipsicotici”.
- PRIN 2000: Progetto “Genotipizzazione per il CYP2C9 in pazienti trattati con l’anticoagulante orale warfarina” nell’ambito del progetto “Parametri farmacogenetici, farmacocinetici e farmacodinamici determinati l’effetto anticoagulante della warfarina nell’uomo”. Coordinatore: Prof. R. Padrini, Università di Padova
- PRA 2000: Progetto “Interazioni farmacocinetiche tra nuovi antidepressivi ed antipsicotici in vitro ed in vivo”.
- PRA 2001: Progetto “Impatto di fattori genetici, fisiologici e della concomitante somministrazione di altri psicofarmaci sulla cinetica degli enantiomeri di fluoxetina e norfluoxetina”
- PRA 2002: Progetto “Ruolo del polimorfismo genetico dell’isoenzima 2D6 del citocromo P450 nella risposta clinica agli inibitori delle colinesterasi in pazienti con Malattia di Alzheimer”.
- PRA 2003: Progetto “Valutazione dell’effetto inducente dell’oxcarbazepina sul metabolismo dei nuovi farmaci antipsicotici”.
- PRIN 2004: Progetto “Biologia molecolare della glucuronidazione della morfina nell’eroinomane” nell’ambito del progetto “Ruolo dei glucuronidi della morfina nella dipendenza da eroina”. Coordinatore: Prof. A. Badiani, Università di Roma.
- PRA 2004: Progetto “Correlazione tra concentrazioni plasmatiche e risposta clinica in pazienti schizofrenici trattati con olanzapina”.
- PRA 2005: “Interazioni farmacocinetiche tra quetiapina e stabilizzatori dell’umore”.
- PRA 2006-07: Progetto “Effetto di un trattamento con antipsicotici atipici sui livelli serici di Brain-Derived Neurotrophic Factor (BDNF) in pazienti schizofrenici”.
- PRIN 2007: Progetto “Tipizzazione genetica degli isoenzimi del citocromo P450 e monitoraggio plasmatico degli antidepressivi in pazienti depressi in oncologia” nell’ambito del progetto “Caratterizzazione fenotipica dell’adattamento mentale al cancro e della risposta al trattamento con farmaci antidepressivi in oncologia” Coordinatore: Prof. Tullio Giraldi, Università di Trieste.
- PRA 2008-2009: Effetto di melatonina ed iperico su comportamento e neurogenesi in un modello animale di depressione

- AIFA Ricerca Indipendente sui Farmaci 2012: Studio controllato randomizzato sulle implicazioni farmacocinetiche e cliniche della sostituzione di prodotti generici di farmaci antiepilettici. Coordinatore: Prof. Emilio Perucca, Università di Pavia.
- Progetto Regionale di Farmacovigilanza, finanziato fondi AIFA 2010-2011: Valutazione del profilo di tollerabilità e sicurezza dei farmaci antipsicotici in età pediatrica.
- Ministero della Salute, Progetto ricerca finalizzata: Towards precision medicine in psychiatry: clinical validation of a combinatorial pharmacogenomics approach (RF-2016-02361697). Coordinatore: Prof. Massimo Gennarelli, Università di Brescia.
- Progetto Multiregionale di Farmacovigilanza, finanziato fondi AIFA 2012-2014 (responsabile scientifico per la regione Sicilia): Valutazione post-marketing del profilo beneficio-rischio dei farmaci biologici Originator e biosimilari in area dermatologica, reumatologica, gastroenterologica ed oncoematologica tramite la costruzione di un network unico multiregionale per l'analisi integrata di dati provenienti da banche dati sanitarie, sorveglianze attive e registri clinici – progetto VALORE
- Progetto Multiregionale di Farmacovigilanza finanziato, fondi AIFA 2012-2014 (responsabile scientifico per la regione Sicilia): Integrazione Ospedale – territorio nelle popolazioni a rischio: riconciliazione terapeutica e counselling farmacologico (MEAP 3.0)

#### *Privati*

- 2007 Lundbeck S.p.A. Interazioni farmacocinetiche tra antidepressivi e nuovi antipsicotici.
- 2009 Boehringer Ingelheim Italia S.p.A. Psicofarmaci e neuro plasticità.
- 2009 Lundbeck S.p.A. Interazioni farmacocinetiche tra antidepressivi e farmaci internistici.
- 2011 Innova Pharma S.p.A. Modelli sperimentali preclinici applicati allo studio della neuroplasticità da psicofarmaci.
- 2013 Lundbeck S.p.A. Antipsicotici di seconda generazione: concentrazioni plasmatiche di steady-state in pazienti trattati con farmaci generici e di marca.
- 2014 ArcaPharma s.r.l. Integratori alimentari nel trattamento dei disturbi depressivi.
- 2015 ArcaPharma s.r.l. Integratori alimentari nel trattamento dei disturbi psichici.
- 2016 ArcaPharma s.r.l. Integratori alimentari nel trattamento dei disturbi psichici.

#### **Attività editoriale e recensione di manoscritti**

Dal 2020 Editor-in-Chief di CNS & Neurological Disorders-Drug Targets (CNSND-DT)

Dal 2010 Associate Editor di Frontiers in Pharmacogenetics.

Dal 2000 è nell'Editorial Board della rivista Therapeutic Drug Monitoring.

Dal 2006 è nell'Editorial Board di Basic and Clinical Pharmacology and Toxicology.

Dal 2007 al 2009 nell'Editorial Board di Pharmacological Research.

Dal 2016 nell'Editorial Board di CNS & Neurological Disorders-Drug Targets (CNSND-DT)

Dal 2010 nell'Editorial Board di Clinical Neuropsychopharmacology and Therapeutics

Dal 2015 nell'Editorial Board di Neuropsychiatric Disease and Treatment

Dal 2016 nell'Editorial Board di CNS & Neurological Disorders-Drug Targets (CNSND-DT)

Dal 2016 nel Board of International Consulting Editors di Journal of Clinical Psychopharmacology

Dal 2017 nell'Editorial Board di European Journal of Clinical Pharmacology

Svolge inoltre attività di referee per le numerose riviste di neuropsichiatria fra cui:

Acta Neuropsychiatrica, Acta Pharmacologica Sinica, Analytica Chimica Acta, British Journal of Clinical Pharmacology, Clinical Drug Investigation, Clinical Pharmacokinetics, Clinical Pharmacology and Therapeutics, CNS Drugs, Drugs of Today, Drug Safety, Epilepsia, European Psychiatry, Expert Opinion for Drug Delivery, Expert Opinion on Pharmacotherapy, Expert Review of Neurotherapeutics, General Hospital Psychiatry, International Journal of Neuropsychopharmacology, Journal of Chromatography B, Journal of Clinical Psychiatry, Journal of Pharmacokinetics and Pharmacodynamics, Journal of Psychiatry & Neuroscience, Journal of Psychiatry Research, Journal of Psychopharmacology, Life Sciences, Neuropsychopharmacology, Pharmacogenetics, Pharmacogenetics and Genomics, Pharmacogenomics, Pharmacopsychiatry, Progress in Neuro-Psychopharmacology & Biological Psychiatry, Psychopharmacology, Psychotherapy and Psychosomatics

### **Incarichi in società scientifiche**

- Componente del Direttivo e Segretario della Sezione di Farmacologia Clinica della Società Italiana di Farmacologia (dal 2003 al 2007).
- Componente del Direttivo della European Association for Clinical Pharmacology and Therapeutics (dal 2011 al 2017).

## **ATTIVITA' DIDATTICA**

1987: Corso di Psicofarmacologia nel Dipartimento di Farmacologia e Psichiatria dell'Università di Estremadura, Badajoz, Spagna.

1990-91, 1991-92: Corso di Farmacologia Clinica, scuola per infermieri professionali, U.S.L. 41 Messina.

1991-92, 1992-93, 1993-94: Professore a contratto di Farmacologia Speciale e Farmacocinetica presso la Scuola di Specializzazione in Farmacologia dell'Università di Messina.

1994-95, 1995-96: Professore a contratto di Neuropsicofarmacologia presso la Scuola di Specializzazione in Farmacologia della Seconda Università di Napoli.

Dal 1998 insegnamento della farmacologia presso l'Università di Messina:

### *Corsi di Laurea della Facoltà di Medicina e Chirurgia*

- Corso di Laurea in Medicina e Chirurgia (in atto Coordinatore del C.I. di Farmacologia, Tossicologia e Medicina Basata sulle Evidenze)
- Corso di Laurea in Tecniche di Neurofisiopatologia
- Corso di Laurea in Scienze delle Professioni Sanitarie Tecniche e Diagnostiche
- Corso di Laurea in Tecniche Audioprotesiche

### *Scuole di Specializzazione*

- Direttore della Scuola di Specializzazione in Farmacologia dell'Università degli Studi di Messina dal 2004 al 2007
- Coordinatore della Scuola di Specializzazione in Farmacologia Medica dell'Università degli Studi di Catania (sede amministrativa), per la sede aggregata dell'Università degli Studi di Messina, dal 2008 al 2018.

Docente presso le seguenti Scuole di Specializzazione:

- Farmacologia e Tossicologia Clinica
- Psichiatria
- Neurologia
- Neurofisiopatologia
- Medicina Fisica e Riabilitazione
- Neuropsichiatria Infantile
- Genetica Medica
- Geriatria



- Anestesia e Rianimazione
- Biochimica Clinica
- Radioterapia

#### *Dottorato di Ricerca*

- Componente del Collegio dei Docenti del Dottorato di Ricerca in Medicina Sperimentale dell'Università di Messina dal 1999 al 2001
- Componente del Collegio dei Docenti del Dottorato di Ricerca in Farmacologia Clinica dell'Università di Perugia consorziata con l'Università di Messina dal 2001 al 2008
- Coordinatore del Dottorato di Ricerca in Psicofarmacologia Clinica dell'Età Evolutiva dell'Università di Messina dal 2009 (XXIV e XXV ciclo)
- Coordinatore del Dottorato di Ricerca in Neuropsicofarmacologia Clinica e Sperimentale ed Applicazioni in Neuroriabilitazione dell'Università di Messina dal 2011 (XXVI, XXVII e XXVIII ciclo)
- Coordinatore del Dottorato di Ricerca in Scienze Biomediche Cliniche e Sperimentali dell'Università di Messina dal 2014 al 2018 (XXIX, XXX, XXXI, XXXII e XXXIII ciclo)
- Componente del PhD program in Translational Molecular Medicine and Surgery (dal 2019)

E' stato inoltre docente presso vari Corsi di Perfezionamento e Master.

Svolge inoltre attività tutoriale ed ha seguito numerosi allievi nello svolgimento di tesi sperimentali sia per il Corso di Laurea in Medicina e Chirurgia che in diverse Scuole di Specializzazione.

#### *Corsi ECM*

Dal 2000 ad oggi ha partecipato come docente ad oltre 200 corsi ECM relativi a tematiche di neuro psicofarmacologia clinica. Di 25 corsi ECM è stato anche organizzatore e responsabile scientifico.

## **ATTIVITA' ASSISTENZIALE**

- Componente dell'Unità Operativa di Farmacologia Clinica, Farmacoepidemiologia e Farmacovigilanza dell'Azienda Ospedaliera Policlinico Universitario di Messina (dal 1998 al 2003).
- Responsabile dell'Unità Operativa Semplice di Tossicologia e Monitoraggio Farmaci e Sostanze d'Abuso dell'Azienda Ospedaliera Policlinico Universitario di Messina da Luglio 2003 a Giugno 2009.
- Componente e vice-direttore dell'Unità Operativa di Farmacologia Clinica dell'Azienda Ospedaliera Policlinico Universitario di Messina (dal 2010 al 2016).
- Componente del Centro Interdipartimentale d'Informazione Farmaco-Tossicologico dell'Università di Messina (dal 1999 al 2003).

## **ATTIVITA' ISTITUZIONALE**

- Componente del Nucleo di Valutazione dell'Università di Messina (dal 2005 al 2007).
- Preside vicario della Facoltà di Medicina e Chirurgia dell'Università di Messina (dal 2009 al 2012).
- Componente, con ruolo di vice presidente e segretario scientifico, del Comitato Etico dell'Azienda Ospedaliera Policlinico Universitario di Messina dal 2006 al 2013.
- Presidente del Comitato Etico interaziendale della Provincia di Messina da gennaio 2014 a giugno 2020.

## ELENCO DELLE PUBBLICAZIONI

### PUBBLICAZIONI SU RIVISTE SCIENTIFICHE INDICIZZATE

1. Pisani F, **Spina E**, Trunfio C, Fazio A, Oteri G, Di Perri R. Intradaily oscillations in dipropylacetic acid plasma levels with two or three daily doses of dipropylacetamide in epileptic patients. *Ital J Neurol Sci* 1983; 2: 173-177.
2. **Spina E**, Goransson M. Effect of antiepileptic drugs on the 2-hydroxylation of desmethylimipramine in human liver microsomes. *IRCS Med Sci* 1984; 12: 1123-1124.
3. **Spina E**, Birgersson C, von Bahr C, Ericsson O, Mellstrom B, Steiner E, Sjoqvist F. Phenotypic consistency in hydroxylation of desmethylimipramine and debrisoquine in healthy subjects and in human liver microsomes. *Clin Pharmacol Ther* 1984; 36: 677-682.
4. **Spina E**, Henthorn TK, Eleborg L, Nordin C, Sawe J. Desmethylimipramine overdose: nonlinear kinetics in a slow hydroxylator. *Ther Drug Monit* 1985; 7: 239-241.
5. **Spina E**, Ericsson O, Nordin C, Analysis of tricyclic antidepressants in serum and plasma yields similar results. *Ther Drug Monit* 1985; 7: 242-243.
6. von Bahr C, **Spina E**, Birgersson C, Ericsson O, Henthorn T, Goransson M, Sjoqvist F. Inhibition of desmethylimipramine 2-hydroxylation by drugs in human liver microsomes. *Biochem Pharmacol* 1985; 34: 2501-2505.
7. **Spina E**, Koike Y. Differential effects of cimetidine and ranitidine on imipramine demethylation and desmethylimipramine hydroxylation by human liver microsomes. *Eur J Clin Pharmacol* 1986; 30: 239-242.
8. **Spina E**, Pacifici GM, von Bahr C, Rane A. Characterization of desmethylimipramine 2-hydroxylation in human foetal and adult liver microsomes. *Acta Pharmacol et Toxicol* 1986; 58: 277-281.
9. von Bahr C, Birgersson C, Morgan ET, Ericsson O, Goransson M, **Spina E**, Woodhouse K. Oxidation of tricyclic antidepressants drugs, debrisoquine and 7-ethoxyresorufin, by human liver preparations. *Xenobiotica* 1986; 16: 391-400.
10. Pisani F, Primerano G, Amendola D'Agostino A, **Spina E**, Fazio A. Valproic acid-amitriptyline interaction in man. *Ther Drug Monit* 1986; 8: 382-383.
11. Pisani F, Fazio A, **Spina E**, Artesi C, Pisani B, Russo M, Trio R, Perucca E. Pharmacokinetics of the antidepressant drug viloxazine in normal subjects and in epileptic patients receiving chronic anticonvulsant treatment. *Psychopharmacology* 1986; 90: 295-298.
12. **Spina E**, Steiner E, Ericsson O, Sjoqvist F. Hydroxylation of desmethylimipramine: dependence on the debrisoquine hydroxylation phenotype. *Clin Pharmacol Ther* 1987; 41: 314-319.
13. Fazio A, **Spina E**, Pisani F. Analysis of tricyclic antidepressants by liquid chromatography. *J Liq Chromatogr* 1987; 10: 223-240.
14. Tomson T, **Spina E**, Wedlund JE. Minor additive inducing effects of phenobarbital on carbamazepine clearance in patients on combined carbamazepine-phenytoin therapy. *Ther Drug Monit* 1987; 9: 117-1197.
15. **Spina E**, Arena A, Pisani F. Urinary desipramine hydroxylation index and steady-state plasma concentrations of imipramine and desipramine. *Ther Drug Monit* 1987; 9: 129-133.
16. Steiner E, **Spina E**. Differences in the inhibitory effect of cimetidine on desipramine metabolism between rapid and slow debrisoquine hydroxylators. *Clin Pharmacol Ther* 1987; 42: 278-282.
17. **Spina E**, Kenneback G, Bergfeldt L, Tomson T. Prevalence of cardiac conduction disturbances during carbamazepine treatment: preliminary data. *Functional Neurology* 1987; 2: 563-567.
18. Bertilsson L, Aberg-Wistedt A, Otani K, **Spina E**. Alprazolam does not inhibit the metabolism of nortriptyline in depressed patients. *Ther Drug Monit* 1988; 10: 231-233.

19. Fazio A, Artesi C, Lorefice C, Oteri G, Romano F, Russo M, **Spina E**, Trio R, Pisani F. Evaluation of tricyclic antidepressants plasma levels by an automated enzyme immunoassay in comparison with a high performance liquid chromatographic method. *Ther Drug Monit* 1988; 10: 333-339.
20. Steiner E, Dumont E, **Spina E**, Dahlqvist R. Inhibition of desipramine 2-hydroxylation by quinidine and quinine. *Clin Pharmacol Ther* 1988; 43: 577-581.
21. **Spina E**, Tomson T, Bertilsson L, Svensson JO, Faigle JW. Single-dose kinetics of an enteric coated formulation of carbamazepine-10,11-epoxide. *Ther Drug Monit* 1988; 10: 382-385.
22. Pisani F, Fazio A, Oteri G, **Spina E**, Perucca E, Bertilsson L. Effect of valpromide on the pharmacokinetics of carbamazepine-10,11-epoxide. *Br J Clin Pharmacol* 1988; 25: 611-613.
23. **Spina E**, Buemi AL, Caputi AP, Benitez J, Cobaleda J, Garcia MA, Llerena A, Pinas B. Debrisoquine oxidation in schizophrenic patients treated with neuroleptics. *Pharmacological Research Communications* 1988; 20: 1103-1104.
24. Perucca E, Pisani F, **Spina E**, Oteri G, Fazio A, Bertilsson L. Effects of valpromide and viloxazine on the elimination of carbamazepine-10,11-epoxide, an active metabolite of carbamazepine. *Pharmacological Research* 1989; 21: 111-112.
25. Henthorn TK, **Spina E**, Dumont E, von Bahr C. In vitro inhibition of a polymorphic human liver P-450 isozyme by narcotic analgesic. *Anesthesiology* 1989; 70: 339-342.
26. **Spina E**, Buemi AL, Sanz E, Bertilsson L. Diazepam treatment does not influence the debrisoquine or mephenytoin phenotyping tests. *Ther Drug Monit* 1989; 11: 721-723.
27. Schepis C, Palazzo R, Ragusa RM, **Spina E**, Barletta C. Association of cutis verticis gyrata with fragile X syndrome and fragility of chromosome 12. *Lancet* 1989; I: 279.
28. **Spina E**. Pharmacogenetics of tricyclic antidepressants. *Rev Farmacol Clin Exp* 1989; 6: 143-146.
29. Pisani F, Caputo M, Fazio A, Oteri G, Russo M, **Spina E**, Perucca E, Bertilsson L. Interaction of carbamazepine-10,11-epoxide, an active metabolite of carbamazepine, with valproic acid: a pharmacokinetic study. *Epilepsia* 1990; 31: 339-342.
30. Schepis C, Palazzo R, Cannavò SP, Ragusa RM, Barletta C, **Spina E**. Prevalence of primary cutis verticis gyrata in a psychiatric population: association with chromosomal fragile sites. *Acta Derm Venereol* 1990; 70: 483-486.
31. **Spina E**, Amendola D'Agostino AM, Ioculano MP, Oteri G, Fazio A, Pisani F. No effect of thioridazine on plasma concentrations of carbamazepine and its active metabolite carbamazepine-10,11-epoxide. *Ther Drug Monit* 1990; 12: 511-513.
32. **Spina E**, Martines C, Fazio A, Trio R, Pisani F, Tomson T. Effect of phenobarbital on the pharmacokinetics of carbamazepine-10,11-epoxide, an active metabolite of carbamazepine. *Ther Drug Monit* 1991; 13: 109-112.
33. **Spina E**, Martines C, Caputi AP, Cobaleda J, Pinas B, Carrillo A, Benitez J. Debrisoquine oxidation phenotype during neuroleptic monotherapy. *Eur J Clin Pharmacol* 1991; 41: 467-470.
34. **Spina E**, Sturiale V, Ancione M, Valvo S, Masessa De Dovitiis G, Di Rosa AE, Meduri M, Caputi AP. Haloperidol-induced acute dystonic reactions in hospitalised psychiatric patients: incidence and risk factors. *New Trends Exp Clin Psychiat* 1991; 7: 101-106.
35. **Spina E**, Campo GM, Calandra S, Caputi AP, Carrillo A, Benitez J. Debrisoquine oxidation in an Italian population: a study in healthy subjects and in schizophrenic patients. *Pharmacol Res* 1992; 25: 43-50.
36. **Spina E**, Ancione M, Di Rosa AE, Meduri M, Caputi AP. Polymorphic debrisoquine oxidation and acute neuroleptic-induced side effects. *Eur J Clin Pharmacol* 1992; 42: 347-348.
37. **Spina E**, Campo GM, Avenoso A, Pollicino AM, Caputi AP. Interaction between fluvoxamine and imipramine/desipramine in four patients. *Ther Drug Monit* 1992; 14: 194-196.

38. **Spina E**, Campo GM, Avenoso A, Pollicino AM, Caputi AP. Effect of buspirone or zopiclone on plasma concentration of imipramine and desipramine in depressed patients. *Eur Bull Drug Res* 1992; 1: 37-40.
39. Pollicino AM, **Spina E**, Campo GM, Avenoso A, Caputi AP. Pharmacokinetic interaction between tricyclic antidepressants and other psychotropic drugs in depressed patients. *Pharmacol Res* 1992; 25 (Suppl 2): 210-211.
40. **Spina E**, Avenoso A, Pollicino AM, Fazio A, Pisani F, Caputi AP. No effect of fluvoxamine or fluoxetine on plasma concentrations of carbamazepine in epileptic patients. *Pharmacol Res* 1992; 25 (Suppl 2): 214-215.
41. **Spina E**, De Domenico P, Bonanzinga M, Amendola D'Agostino MA, Gitto C, Di Rosa AE, Caputi AP. A double blind comparative study of bromperidol versus haloperidol in schizophrenic patients. *New Trends Exp Clin Psychiat* 1992; 8: 67-71.
42. Pisani F, Fazio A, Artesi C, Oteri G, **Spina E**, Tomson T, Perucca E. Impairment of carbamazepine-10,11-epoxide elimination by valnoctamide, a valpromide isomer, in healthy subjects. *Br J Clin Pharmacol* 1992; 34: 85-87.
43. Kenneback G, Bergfeldt L, Tomson T, **Spina E**, Edhag O. Carbamazepine induced bradycardia - a problem in general or only in susceptible patients? A 24-h long-term electrocardiogram study. *Epilepsy Res* 1992; 13: 141-145.
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Dichiaro che le informazioni riportate nel presente Curriculum Vitae sono esatte e veritiere.

Autorizzo il trattamento dei dati personali, ivi compresi quelli sensibili, ai sensi e per gli effetti del decreto legge 196/2003.

Messina, li 23 settembre 2021

Prof. Edoardo Spina

