

**Πρόγραμμα Μεταπτυχιακών Σπουδών Εξειδίκευσης
του Τμήματος Ελληνικής Φιλολογίας του Δημοκριτείου Πανεπιστημίου Θράκης
σε συνεργασία με το
ΕΚΕΦΕ Δημόκριτος – Ινστιτούτο Πληροφορικής και Τηλεπικοινωνιών
με τίτλο: «Εξειδίκευση στις Τ.Π.Ε. και Ειδική Αγωγή – Ψυχοπαιδαγωγική της ένταξης»**

ΟΡΓΑΝΙΚΕΣ ΧΗΜΙΚΕΣ ΟΥΣΙΕΣ ΚΑΙ ΑΥΤΙΣΜΟΣ

ORGANIC CHEMICAL COMPOUNDS AND AUTISM

TOU

Νησιώτη Μιχαήλ

Μεταπτυχιακή διατριβή που υποβάλλεται
Στην τριμελή επιτροπή για την απόκτηση του μεταπτυχιακού τίτλου του
Προγράμματος Μεταπτυχιακών Σπουδών Εξειδίκευσης
Του Τ.Ε.Φ. – Δ.Π.Θ. σε συνεργασία με το Ε.Κ.Ε.Φ.Ε. Δημόκριτος – Ινστιτούτο
Πληροφορικής και Τηλεπικοινωνιών
Με τίτλο: «Εξειδίκευση στις Τ.Π.Ε. και Ειδική Αγωγή – Ψυχοπαιδαγωγική της
Ένταξης»

Εγκεκριμένο από την τριμελή επιτροπή:

1^{ος} Επιβλέπων: Αθανάσιος Δρίγκας, Ερευνητής Α' Βαθμίδας Ι.Π.Τ. Ε.Κ.Ε.Φ.Ε.
«ΔΗΜΟΚΡΙΤΟΣ»

2^η Επιβλέπουσα: Χριστίνα Συριοπούλου-Δελλή, Αναπληρώτρια καθηγήτρια,
Πανεπιστήμιο Μακεδονίας

3^η Επιβλέπουσα: Ζωή Καραμπατζάκη, Συνεργαζόμενη Ερευνήτρια Ι.Π.Τ. Ε.Κ.Ε.Φ.Ε.
«ΔΗΜΟΚΡΙΤΟΣ»

Αθήνα 2020

ΠΕΡΙΛΗΨΗ

Η διαταραχή αυτιστικού φάσματος περιγράφεται ως μια νευροαναπτυξιακή διαταραχή. Τα τελευταία 30 χρόνια παρατηρήθηκε μια μεγάλη αύξηση των διαγνώσεων του αυτισμού. Σύμφωνα με πρόσφατα στοιχεία, ένα ποσοστό έως και 40-50%, όσον αφορά παράγοντες που μπορεί να εμπλέκονται στην αιτιολογία του φάσματος του αυτισμού μπορεί να αποδοθεί σε περιβαλλοντικούς παράγοντες. Τα παιδιά σήμερα διατρέχουν κίνδυνο έκθεσης σε περίπου 3.000 συνθετικές χημικές ουσίες που παράγονται, η κάθε μία, σε ποσότητες άνω των 500 τόνων ετησίως, και ονομάζονται χημικές ουσίες υψηλού όγκου παραγωγής. Οι χημικές αυτές ουσίες εντοπίζονται σε μια ευρεία γκάμα καταναλωτικών αγαθών. Η παρούσα βιβλιογραφική ανασκόπηση εξετάζει την πιθανή συσχέτιση μεταξύ οργανικών χημικών ουσιών, με τις οποίες σχεδόν όλοι οι άνθρωποι έρχονται σε καθημερινή επαφή, και της διαταραχής αυτιστικού φάσματος, καθώς και πιθανούς μηχανισμούς μέσω των οποίων οι οργανικές αυτές χημικές ουσίες μπορούν να επηρεάσουν την εκδήλωση της διαταραχής. Πιο συγκεκριμένα εξετάζονται οργανικές χημικές ουσίες που περιέχονται σε παρασιτοκτόνα, σε ατμοσφαιρικούς ρύπους, σε πτητικές οργανικές ενώσεις/διαλύτες, σε μη επιμένοντες οργανικούς ρύπους, σε επιμένοντες οργανικούς ρύπους, στο κάπνισμα, στη διατροφή, στα φάρμακα και στα αρώματα. Η ακριβής αιτιολογία της διαταραχής αυτιστικού φάσματος παραμένει μέχρι σήμερα άγνωστη. Η βιβλιογραφία έχει εμπλέξει αρκετούς περιβαλλοντικούς παράγοντες που σχετίζονται με την ανάπτυξη της διαταραχής αυτιστικού φάσματος. Οι παράγοντες αυτοί περιλαμβάνουν πλήθος οργανικών χημικών ουσιών οι οποίες, ενώ πολλές φορές χαρακτηρίζονται ως επικίνδυνα τοξικά, περιέχονται σε προϊόντα καθημερινής χρήσης. Περαιτέρω έρευνα κρίνεται απαραίτητη για την αποσαφήνιση της συσχέτισης μεταξύ των επικίνδυνων οργανικών χημικών ουσιών και της διαταραχής του αυτιστικού φάσματος.

ΒΙΒΛΙΟΓΡΑΦΙΑ

- Abbott, L. C., & Winzer-Serhan, U. H. (2012). Smoking during pregnancy: lessons learned from epidemiological studies and experimental studies using animal models. *Critical reviews in toxicology*, 42(4), 279-303.
- Adams, J. B., Romdalvik, J., Ramanujam, V. S., & Legator, M. S. (2007). Mercury, lead, and zinc in baby teeth of children with autism versus controls. *Journal of Toxicology and Environmental Health, Part A*, 70(12), 1046-1051.
- Aicardi, J., Bax, M., Gillberg, C., & Ogier, H. (1992). *Diseases of the nervous system in childhood* (pp. 108-202). London/Oxford/New York: Mac Keith Press.
- Aldridge, J. E., Seidler, F. J., Meyer, A., Thillai, I., & Slotkin, T. A. (2003). Serotonergic systems targeted by developmental exposure to chlorpyrifos: effects during different critical periods. *Environmental health perspectives*, 111(14), 1736-1743.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.
- Ap Association. (2013). Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5). *Psychiatry Res*, 189(1), 158-159.
- Asperger, H., & Frith, U. T. (1991). 'Autistic psychopathy'in childhood.
- Avella-Garcia, C. B., Julvez, J., Fortuny, J., Rebordosa, C., García-Estebar, R., Galán, I. R., ... & Santa-Marina, L. (2016). Acetaminophen use in pregnancy and neurodevelopment: attention function and autism spectrum symptoms. *International journal of epidemiology*, 45(6), 1987-1996.
- Bagasra, O., Golkar, Z., Garcia, M., Rice, L. N., & Pace, D. G. (2013). Role of perfumes in pathogenesis of autism. *Medical hypotheses*, 80(6), 795-803.
- Baron-Cohen, S. (2000). Theory of mind and autism: A review. In *International review of research in mental retardation* (Vol. 23, pp. 169-184). Academic Press.
- Barr, D. B., Ryan, P. B., & Buckley, B. (2013). Volatile organic compounds. *Textbook of Children's Environmental Health*, 314.

- Baxter, A. J., Brugha, T. S., Erskine, H. E., Scheurer, R. W., Vos, T., & Scott, J. G. (2015). The epidemiology and global burden of autism spectrum disorders. *Psychological medicine*, 45(3), 601.
- Becker, K. G., & Schultz, S. T. (2010). Similarities in features of autism and asthma and a possible link to acetaminophen use. *Medical hypotheses*, 74(1), 7-11.
- Bentur, Y., & Koren, G. (1991). The three most common occupational exposures reported by pregnant women: an update. *American journal of obstetrics and gynecology*, 165(2), 429-437.
- Bhandari, R., & Kuhad, A. (2015). Neuropsychopharmacotherapeutic efficacy of curcumin in experimental paradigm of autism spectrum disorders. *Life sciences*, 141, 156-169.
- Bjørklund, G., Skalny, A. V., Rahman, M. M., Dadar, M., Yassa, H. A., Aaseth, J., ... & Tinkov, A. A. (2018). Toxic metal (loid)-based pollutants and their possible role in autism spectrum disorder. *Environmental research*, 166, 234-250.
- Blatt, G. J., Fitzgerald, C. M., Guptill, J. T., Booker, A. B., Kemper, T. L., & Bauman, M. L. (2001). Density and distribution of hippocampal neurotransmitter receptors in autism: an autoradiographic study. *Journal of autism and developmental disorders*, 31(6), 537-543.
- Bölte, S., Girdler, S., & Marschik, P. B. (2019). The contribution of environmental exposure to the etiology of autism spectrum disorder. *Cellular and Molecular Life Sciences*, 76(7), 1275-1297.
- Boyle, C. A., Boulet, S., Schieve, L. A., Cohen, R. A., Blumberg, S. J., Yeargin-Allsopp, M., ... & Kogan, M. D. (2011). Trends in the prevalence of developmental disabilities in US children, 1997–2008. *Pediatrics*, 127(6), 1034-1042.
- Bradman, A., Barr, D. B., Claus Henn, B. G., Drumheller, T., Curry, C., & Eskenazi, B. (2003). Measurement of pesticides and other toxicants in amniotic fluid as a potential biomarker of prenatal exposure: a validation study. *Environmental health perspectives*, 111(14), 1779-1782.

- Braun, J. M., Daniels, J. L., Kalkbrenner, A., Zimmerman, J., & Nicholas, J. S. (2009). The effect of maternal smoking during pregnancy on intellectual disabilities among 8-year-old children. *Paediatric and Perinatal Epidemiology*, 23(5), 482-491.
- Briz, V., Molina-Molina, J. M., Sánchez-Redondo, S., Fernández, M. F., Grimalt, J. O., Olea, N., ... & Suñol, C. (2011). Differential estrogenic effects of the persistent organochlorine pesticides dieldrin, endosulfan, and lindane in primary neuronal cultures. *Toxicological Sciences*, 120(2), 413-427.
- Bruce, N., Perez-Padilla, R., & Albalak, R. (2000). Indoor air pollution in developing countries: a major environmental and public health challenge. *Bulletin of the World Health organization*, 78, 1078-1092.
- Brugge, D., Durant, J. L., & Rioux, C. (2007). Near-highway pollutants in motor vehicle exhaust: a review of epidemiologic evidence of cardiac and pulmonary health risks. *Environmental health*, 6(1), 23.
- Γενά, Α. (2002). *Αυτισμός και διάχυτες αναπτυξιακές διαταραχές: αξιολόγηση, διάγνωση, αντιμετώπιση*. Αθήνα.
- Calderon-Garciduenas, L., Maronpot, R. R., Torres-Jardon, R., Henriquez-Roldan, C., Schoonhoven, R., Acuna-Ayala, H., ... & Azzarelli, B. (2003). DNA damage in nasal and brain tissues of canines exposed to air pollutants is associated with evidence of chronic brain inflammation and neurodegeneration. *Toxicologic pathology*, 31(5), 524-538.
- Camann, D. E., Schultz, S. T., Yau, A. Y., Heilbrun, L. P., Zuniga, M. M., Palmer, R. F., & Miller, C. S. (2013). Acetaminophen, pesticide, and diethylhexyl phthalate metabolites, anandamide, and fatty acids in deciduous molars: potential biomarkers of perinatal exposure. *Journal of exposure science & environmental epidemiology*, 23(2), 190-196.
- Cao, X., Lin, P., Jiang, P., & Li, C. (2013). Characteristics of the gastrointestinal microbiome in children with autism spectrum disorder: a systematic review. *Shanghai archives of psychiatry*, 25(6), 342.
- Casida, J. E. (2011). Curious about pesticide action. *Journal of agricultural and food chemistry*, 59(7), 2762-2769.

- Castro, K., Klein, L. D. S., Baronio, D., Gottfried, C., Riesgo, R., & Perry, I. S. (2016). Folic acid and autism: what do we know?. *Nutritional neuroscience*, 19(7), 310-317.
- Cekici, H., & Sanlier, N. (2019). Current nutritional approaches in managing autism spectrum disorder: A review. *Nutritional neuroscience*, 22(3), 145-155.
- Chaidi, I., & Drigas, A. (2020). Autism, Expression, and Understanding of Emotions: Literature Review. *International Journal of Online and Biomedical Engineering (iJOE)*, 16(02), 94-111.
- Charlton, R. A., Jordan, S., Pierini, A., Garne, E., Neville, A. J., Hansen, A. V., ... & Bos, H. J. (2015). SSRI prescribing before, during and after pregnancy: a population-based study in 6 European regions. *BJOG* 122:1010-1020
- Cheng, J., Eskenazi, B., Widjaja, F., Cordero, J. F., & Hendren, R. L. (2019). Improving autism perinatal risk factors: A systematic review. *Medical hypotheses*, 127, 26-33.
- Christensen, D. L., Braun, K. V. N., Baio, J., Bilder, D., Charles, J., Constantino, J. N., ... & Lee, L. C. (2018). Prevalence and characteristics of autism spectrum disorder among children aged 8 years—autism and developmental disabilities monitoring network, 11 sites, United States, 2012. *MMWR Surveillance Summaries*, 65(13), 1.
- Corsini, E., Liesivuori, J., Vergieva, T., Van Loveren, H., & Colosio, C. (2008). Effects of pesticide exposure on the human immune system. *Human & experimental toxicology*, 27(9), 671-680.
- Costa, L. G. (2006). Current issues in organophosphate toxicology. *Clinica chimica acta*, 366(1-2), 1-13.
- Croonenberghs, J., Verkerk, R., Scharpe, S., Deboutte, D., & Maes, M. (2005). Serotonergic disturbances in autistic disorder: L-5-hydroxytryptophan administration to autistic youngsters increases the blood concentrations of serotonin in patients but not in controls. *Life sciences*, 76(19), 2171-2183.
- Croonenberghs, J., Wauters, A., Devreese, K., Verkerk, R., Scharpe, S., Bosmans, E., ... & Maes, M. (2002). Increased serum albumin, [gamma] globulin, immunoglobulin IgG, and IgG2 and IgG4 in autism. *Psychological Medicine*, 32(8), 1457.

- De Cock, M., Maas, Y. G., & Van De Bor, M. (2012). Does perinatal exposure to endocrine disruptors induce autism spectrum and attention deficit hyperactivity disorders? Review. *Acta paediatrica*, 101(8), 811-818.
- de Magalhães Rios, J. L., Boechat, J. L., Gioda, A., dos Santos, C. Y., de Aquino Neto, F. R., & e Silva, J. R. L. (2009). Symptoms prevalence among office workers of a sealed versus a non-sealed building: associations to indoor air quality. *Environment international*, 35(8), 1136-1141.
- Dickerson, A. S., Rahbar, M. H., Han, I., Bakian, A. V., Bilder, D. A., Harrington, R. A., ... & Tian, L. H. (2015). Autism spectrum disorder prevalence and proximity to industrial facilities releasing arsenic, lead or mercury. *Science of the Total Environment*, 536, 245-251.
- Dietz, P. M., Homa, D., England, L. J., Burley, K., Tong, V. T., Dube, S. R., & Bernert, J. T. (2011). Estimates of nondisclosure of cigarette smoking among pregnant and nonpregnant women of reproductive age in the United States. *American journal of epidemiology*, 173(3), 355-359.
- Donaldson, D., Kiely, T., & Grube, A. (2002). Pesticides industry sales and usage 1998 and 1999 market estimates. Washington, DC: US Environmental Protection Agency, Office of Prevention, Pesticides, and Toxic Substances, Office of Pesticide Programs.
- Drigas, A., & Mitsea, E. (2020). The Triangle of Spiritual Intelligence, Metacognition and Consciousness. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 8(1), 4-23.
- Drigas, A., & Karyotaki, M. (2019). Executive Functioning and Problem Solving: A Bidirectional Relation. *International Journal of Engineering Pedagogy (iJEP)*, 9(3), 76-98.
- Drigas, A. S., Karyotaki, M., & Skianis, C. (2018). An Integrated Approach to Neuro-development, Neuroplasticity and Cognitive Improvement. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 6(3), 4-18.
- Drigas, A. S., & Papoutsi, C. (2018). A new layered model on emotional intelligence. *Behavioral Sciences*, 8(5), 45.

- Drigas, A., & Karyotaki, M. (2017). Attentional control and other executive functions. *International Journal of Emerging Technologies in Learning (iJET)*, 12(03), 219-233.
- Drigas, A. S., & Pappas, M. A. (2017). The Consciousness-Intelligence-Knowledge Pyramid: An 8x8 Layer Model. *International Journal of Recent Contributions from Engineering, Science & IT (iJES)*, 5(3), 14-25.
- Dufault, R., Lukiw, W. J., Crider, R., Schnoll, R., Wallinga, D., & Deth, R. (2012). A macroepigenetic approach to identify factors responsible for the autism epidemic in the United States. *Clinical Epigenetics*, 4(1), 6.
- Ejaredar, M., Nyanza, E. C., Ten Eycke, K., & Dewey, D. (2015). Phthalate exposure and childrens neurodevelopment: a systematic review. *Environmental research*, 142, 51-60.
- Erickson, B. E. (2008). Bisphenola under scrutiny. *Chemical & Engineering News*, 86(22), 36-39.
- Fatemi, S. H., Reutiman, T. J., Folsom, T. D., & Thuras, P. D. (2009). GABA A receptor downregulation in brains of subjects with autism. *Journal of autism and developmental disorders*, 39(2), 223.
- Fujiwara, T., Morisaki, N., Honda, Y., Sampei, M., & Tani, Y. (2016). Chemicals, nutrition, and autism spectrum disorder: a mini-review. *Frontiers in neuroscience*, 10, 174.
- Geier, D. A., Kern, J. K., Garver, C. R., Adams, J. B., Audhya, T., Nataf, R., & Geier, M. R. (2009). Biomarkers of environmental toxicity and susceptibility in autism. *Journal of the Neurological Sciences*, 280(1-2), 101-108.
- Gentile, S. (2014). Risks of neurobehavioral teratogenicity associated with prenatal exposure to valproate monotherapy: a systematic review with regulatory repercussions. *CNS spectrums*, 19(4), 305-315.
- Ghanizadeh, A. (2012). Acetaminophen may mediate oxidative stress and neurotoxicity in autism. *Medical hypotheses*, 78(2), 351.

- Ghosh, S., & Ansar, W. (2014). Indoor air pollution: impact on health and stem cells. *Journal of Stem Cells*, 9(4), 269.
- Gogolla, N., LeBlanc, J. J., Quast, K. B., Südhof, T. C., Fagiolini, M., & Hensch, T. K. (2009). Common circuit defect of excitatory-inhibitory balance in mouse models of autism. *Journal of neurodevelopmental disorders*, 1(2), 172-181.
- Gospe Jr, S. M., & Zhou, S. S. (1998). Toluene abuse embryopathy: longitudinal neurodevelopmental effects of prenatal exposure to toluene in rats. *Reproductive Toxicology*, 12(2), 119-126.
- Grahame, T. J., Klemm, R., & Schlesinger, R. B. (2014). Public health and components of particulate matter: the changing assessment of black carbon. *Journal of the Air & Waste Management Association*, 64(6), 620-660.
- Grandjean, P., & Landrigan, P. J. (2006). Developmental neurotoxicity of industrial chemicals. *The Lancet*, 368(9553), 2167-2178.
- Guxens, M., Ghassabian, A., Gong, T., Garcia-Estebar, R., Porta, D., Giorgis-Allemand, L., ... & Cesaroni, G. (2016). Air pollution exposure during pregnancy and childhood autistic traits in four European population-based cohort studies: the ESCAPE project. *Environmental Health Perspectives*, 124(1), 133-140.
- Hadjikhani, N. (2010). Serotonin, pregnancy and increased autism prevalence: is there a link?. *Medical hypotheses*, 74(5), 880-883.
- Happé, F., & Frith, U. (2020). Annual Research Review: Looking back to look forward—changes in the concept of autism and implications for future research. *Journal of Child Psychology and Psychiatry*, 61(3), 218-232.
- Harden, C. L., Meador, K. J., Pennell, P. B., Allen Hauser, W., Gronseth, G. S., French, J. A., ... & Robinson, J. N. (2009). Management issues for women with epilepsy—Focus on pregnancy (an evidence-based review): II. Teratogenesis and perinatal outcomes: Report of the Quality Standards Subcommittee and Therapeutics and Technology Subcommittee of the American Academy of Neurology and the American Epilepsy Society. *Epilepsia*, 50(5), 1237-1246.

- Hays, L. E., Carpenter, C. D., & Petersen, S. L. (2002). Evidence that GABAergic neurons in the preoptic area of the rat brain are targets of 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin during development. *Environmental health perspectives*, 110(suppl 3), 369-376.
- Herbstman, J. B., Sjödin, A., Kurzon, M., Lederman, S. A., Jones, R. S., Rauh, V., ... & Perera, F. (2010). Prenatal exposure to PBDEs and neurodevelopment. *Environmental health perspectives*, 118(5), 712-719.
- Hertz-Pannier, I., Bergman, Å., Fängström, B., Rose, M., Krakowiak, P., Pessah, I., ... & Bennett, D. H. (2011). Polybrominated diphenyl ethers in relation to autism and developmental delay: a case-control study. *Environmental Health*, 10(1), 1.
- Hertz-Pannier, I., & Delwiche, L. (2009). The rise in autism and the role of age at diagnosis. *Epidemiology (Cambridge, Mass.)*, 20(1), 84.
- Hertz-Pannier, I., Park, H. Y., Dostal, M., Kocan, A., Trnovec, T., & Sram, R. (2008). Prenatal exposures to persistent and non-persistent organic compounds and effects on immune system development. *Basic & clinical pharmacology & toxicology*, 102(2), 146-154.
- Heyden, E. L., & Wimalawansa, S. J. (2018). Vitamin D: Effects on human reproduction, pregnancy, and fetal well-being. *The Journal of steroid biochemistry and molecular biology*, 180, 41-50.
- Homberg, J. R., Kyzar, E. J., Scattoni, M. L., Norton, W. H., Pittman, J., Gaikwad, S., ... & Kaluyeva, A. A. (2016). Genetic and environmental modulation of neurodevelopmental disorders: translational insights from labs to beds. *Brain research bulletin*, 125, 79-91.
- Jeddi, M. Z., Janani, L., Memari, A. H., & Akhondzadeh, S. (2016). The role of phthalate esters in autism development: a systematic review. *Environmental Research*, 151, 493-504.
- Kalkbrenner, A. E., Schmidt, R. J., & Penlesky, A. C. (2014). Environmental chemical exposures and autism spectrum disorders: a review of the epidemiological evidence. *Current problems in pediatric and adolescent health care*, 44(10), 277-318.

- Kalkbrenner, A. E., Daniels, J. L., Chen, J. C., Poole, C., Emch, M., & Morrissey, J. (2010). Perinatal exposure to hazardous air pollutants and autism spectrum disorders at age 8. *Epidemiology (Cambridge, Mass.)*, 21(5), 631.
- Kamen, B. (1997, October). Folate and antifolate pharmacology. In *Seminars in oncology* (Vol. 24, No. 5 Suppl 18, p. S18).
- Kanner, L. (1943). Autistic disturbances of affective contact. *Nervous child*, 2(3), 217-250.
- Kardas, F., Bayram, A. K., Demirci, E., Akin, L., Ozmen, S., Kendirci, M., ... & Kumandas, S. (2016). Increased serum phthalates (MEHP, DEHP) and bisphenol a concentrations in children with autism spectrum disorder: the role of endocrine disruptors in autism etiopathogenesis. *Journal of child neurology*, 31(5), 629-635.
- Karr, C. J., Solomon, G. M., & Brock-Utne, A. C. (2007). Health effects of common home, lawn, and garden pesticides. *Pediatric Clinics of North America*, 54(1), 63-80.
- Kaur, K., Chauhan, V., Gu, F., & Chauhan, A. (2014). Bisphenol A induces oxidative stress and mitochondrial dysfunction in lymphoblasts from children with autism and unaffected siblings. *Free Radical Biology and Medicine*, 76, 25-33.
- Kepser, L. J., & Homberg, J. R. (2015). The neurodevelopmental effects of serotonin: a behavioural perspective. *Behavioural brain research*, 277, 3-13.
- Kim, S. M., Han, D. H., Lyoo, H. S., Min, K. J., Kim, K. H., & Renshaw, P. (2010). Exposure to environmental toxins in mothers of children with autism spectrum disorder. *Psychiatry investigation*, 7(2), 122.
- Kondolot, M., Ozmert, E. N., Asci, A., Erkekoglu, P., Oztop, D. B., Gumus, H., ... & Yurdakok, K. (2016). Plasma phthalate and bisphenol a levels and oxidant-antioxidant status in autistic children. *Environmental toxicology and pharmacology*, 43, 149-158.
- Kubota, T., Miyake, K., Hariya, N., & Mochizuki, K. (2015). Epigenomic-basis of preemptive medicine for neurodevelopmental disorders. *Current genomics*, 16(3), 175-182.
- Lam, J., Sutton, P., Kalkbrenner, A., Windham, G., Halladay, A., Koutras, E., ... & Woodruff, T. (2016). A systematic review and meta-analysis of multiple airborne pollutants and autism spectrum disorder. *PLoS one*, 11(9), e0161851.

- Landrigan, P. J. (2010). What causes autism? Exploring the environmental contribution. *Current opinion in pediatrics*, 22(2), 219-225.
- Langdon, A., Crook, N., & Dantas, G. (2016). The effects of antibiotics on the microbiome throughout development and alternative approaches for therapeutic modulation. *Genome medicine*, 8(1), 39.
- Larsson, M., Weiss, B., Janson, S., Sundell, J., & Bornehag, C. G. (2009). Associations between indoor environmental factors and parental-reported autistic spectrum disorders in children 6–8 years of age. *Neurotoxicology*, 30(5), 822-831.
- Laslo-Baker, D., Barrera, M., Knittel-Keren, D., Kozer, E., Wolpin, J., Khattak, S., ... & Koren, G. (2004). Child neurodevelopmental outcome and maternal occupational exposure to solvents. *Archives of pediatrics & adolescent medicine*, 158(10), 956-961.
- Lewis, D. A., Hashimoto, T., & Volk, D. W. (2005). Cortical inhibitory neurons and schizophrenia. *Nature Reviews Neuroscience*, 6(4), 312-324.
- Liew, Z., Ritz, B., Rebordosa, C., Lee, P. C., & Olsen, J. (2014). Acetaminophen use during pregnancy, behavioral problems, and hyperkinetic disorders. *JAMA pediatrics*, 168(4), 313-320.
- Lintas, C. (2019). Linking genetics to epigenetics: The role of folate and folate-related pathways in neurodevelopmental disorders. *Clinical Genetics*, 95(2), 241-252.
- Löfroth, G. (1989). Environmental tobacco smoke: overview of chemical composition and genotoxic components. *Mutation Research/Genetic Toxicology*, 222(2), 73-80.
- Long, M., Ghisari, M., Kjeldsen, L., Wielsøe, M., Nørgaard-Pedersen, B., Mortensen, E. L., ... & Bonefeld-Jørgensen, E. C. (2019). Autism spectrum disorders, endocrine disrupting compounds, and heavy metals in amniotic fluid: a case-control study. *Molecular autism*, 10(1), 1.
- Lyall, K., Munger, K. L., O'Reilly, É. J., Santangelo, S. L., & Ascherio, A. (2013). Maternal dietary fat intake in association with autism spectrum disorders. *American journal of epidemiology*, 178(2), 209-220.

- Ma, D. Q., Whitehead, P. L., Menold, M. M., Martin, E. R., Ashley-Koch, A. E., Mei, H., ... & Cuccaro, M. L. (2005). Identification of significant association and gene-gene interaction of GABA receptor subunit genes in autism. *The American Journal of Human Genetics*, 77(3), 377-388.
- Magnusson, C., Kosidou, K., Dalman, C., Lundberg, M., Lee, B. K., Rai, D., ... & Arver, S. (2016). Maternal vitamin D deficiency and the risk of autism spectrum disorders: population-based study. *BJPsych open*, 2(2), 170-172.
- Masarwa, R., Levine, H., Gorelik, E., Reif, S., Perlman, A., & Matok, I. (2018). Prenatal exposure to acetaminophen and risk for attention deficit hyperactivity disorder and autistic spectrum disorder: a systematic review, meta-analysis, and meta-regression analysis of cohort studies. *American journal of epidemiology*, 187(8), 1817-1827.
- Mazahery, H., Camargo, C. A., Conlon, C., Beck, K. L., Kruger, M. C., & Von Hurst, P. R. (2016). Vitamin D and autism spectrum disorder: a literature review. *Nutrients*, 8(4), 236.
- Mazaud-Guittot, S., Nicolaz, C. N., Desdoits-Lethimonier, C., Coiffec, I., Maamar, M. B., Balaguer, P., ... & Dejucq-Rainsford, N. (2013). Paracetamol, aspirin, and indomethacin induce endocrine disturbances in the human fetal testis capable of interfering with testicular descent. *The Journal of Clinical Endocrinology & Metabolism*, 98(11), E1757-E1767.
- McCanlies, E. C., Fekedulegn, D., Mnatsakanova, A., Burchfiel, C. M., Sanderson, W. T., Charles, L. E., & Hertz-Pannier, I. (2012). Parental occupational exposures and autism spectrum disorder. *Journal of autism and developmental disorders*, 42(11), 2323-2334.
- Medor, K. J. (2008). Effects of in utero antiepileptic drug exposure. *Epilepsy Currents*, 8(6), 143-147.
- Meeker, J. D. (2012). Exposure to environmental endocrine disruptors and child development. *Archives of pediatrics & adolescent medicine*, 166(10), 952-958.
- Messer, A. (2010). Mini-review: polybrominated diphenyl ether (PBDE) flame retardants as potential autism risk factors. *Physiology & behavior*, 100(3), 245-249.

- Mezzacappa, A., Lasica, P. A., Gianfagna, F., Cazas, O., Hardy, P., Falissard, B., ... & Gressier, F. (2017). Risk for autism spectrum disorders according to period of prenatal antidepressant exposure: a systematic review and meta-analysis. *JAMA pediatrics*, 171(6), 555-563.
- Mezzelani, A., Landini, M., Facchiano, F., Raggi, M. E., Villa, L., Molteni, M., ... & Marabotti, A. (2015). Environment, dysbiosis, immunity and sex-specific susceptibility: a translational hypothesis for regressive autism pathogenesis. *Nutritional neuroscience*, 18(4), 145-161.
- Miodovnik, A. (2011). Environmental neurotoxicants and developing brain. *Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine*, 78(1), 58-77.
- Mitchell, M. M., Woods, R., Chi, L. H., Schmidt, R. J., Pessah, I. N., Kostyniak, P. J., & LaSalle, J. M. (2012). Levels of select PCB and PBDE congeners in human postmortem brain reveal possible environmental involvement in 15q11-q13 duplication autism spectrum disorder. *Environmental and molecular mutagenesis*, 53(8), 589-598.
- Modabbernia, A., Velthorst, E., & Reichenberg, A. (2017). Environmental risk factors for autism: an evidence-based review of systematic reviews and meta-analyses. *Molecular autism*, 8(1), 13.
- Molloy, C. A., Morrow, A. L., Meinzen-Derr, J., Schleifer, K., Dienger, K., Manning-Courtney, P., ... & Wills-Karp, M. (2006). Elevated cytokine levels in children with autism spectrum disorder. *Journal of neuroimmunology*, 172(1-2), 198-205.
- Mumper, E. (2013). Can awareness of medical pathophysiology in autism lead to primary care autism prevention strategies?. *North American Journal of Medicine and Science*, 6(3).
- Mustieles, V., Pérez-Lobato, R., Olea, N., & Fernández, M. F. (2015). Bisphenol A: Human exposure and neurobehavior. *Neurotoxicology*, 49, 174-184.
- Nardone, S., & Elliott, E. (2016). The interaction between the immune system and epigenetics in the etiology of autism spectrum disorders. *Frontiers in neuroscience*, 10, 329.

National Research Council. (2000). *Scientific frontiers in developmental toxicology and risk assessment*. National Academies Press.

Nguyen, A. T., Nishijo, M., Hori, E., Nguyen, N. M., Pham, T. T., Fukunaga, K., ... & Nishijo, H. (2013). Influence of maternal exposure to 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin on socioemotional behaviors in offspring rats. *Environmental health insights*, 7, EHI-S10346.

Nguyen, M. N., Nishijo, M., Nguyen, A. T., Bor, A., Nakamura, T., Hori, E., ... & Nishijo, H. (2013). Effects of maternal exposure to 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin on parvalbumin-and calbindin-immunoreactive neurons in the limbic system and superior colliculus in rat offspring. *Toxicology*, 314(1), 125-134.

Nishijo, M., Pham, T. T., Nguyen, A. T. N., Tran, N. N., Nakagawa, H., Hoang, L. V., ... & Nguyen, M. N. (2014). 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin in breast milk increases autistic traits of 3-year-old children in Vietnam. *Molecular psychiatry*, 19(11), 1220-1226.

Nishijo, M., Anh, N. T. N., Maruzeni, S., Nakagawa, H., Van Luong, H., Anh, T. H., ... & Nishijo, H. (2013). Dioxin exposure in breast milk and infant neurodevelopment in Vietnam. *Occup Environ Med*, 70(9), 656-662.

Nishijo, M., Tai, P. T., Nakagawa, H., Maruzeni, S., Anh, N. T. N., Van Luong, H., ... & Nishijo, H. (2012). Impact of perinatal dioxin exposure on infant growth: a cross-sectional and longitudinal studies in dioxin-contaminated areas in Vietnam. *Plos one*, 7(7).

Oberdörster, G., Sharp, Z., Atudorei, V., Elder, A., Gelein, R., Kreyling, W., & Cox, C. (2004). Translocation of inhaled ultrafine particles to the brain. *Inhalation toxicology*, 16(6-7), 437-445.

Onaolapo, O. J., & Onaolapo, A. Y. (2018). Nutrition in autism spectrum disorders: A review of evidences for an emerging central role in aetiology, expression, and management. *AIMS Medical Science*, 5(2), 122.

- Ooi, Y. P., Weng, S. J., Jang, L. Y., Low, L., Seah, J., Teo, S., ... & Sung, M. (2015). Omega-3 fatty acids in the management of autism spectrum disorders: findings from an open-label pilot study in Singapore. *European journal of clinical nutrition*, 69(8), 969-971.
- Orders, F. S. O. Q., & Checkout, P. T. (2018). Autism: It's on the Rise and Linked to Many Health Problems. *Autism*.
- Palmer, R. F., Heilbrun, L., Camann, D., Yau, A., Schultz, S., Elisco, V., ... & Miller, C. (2015). Organic compounds detected in deciduous teeth: A replication study from children with autism in two samples. *Journal of environmental and public health*, 2015.
- Palmer, R. F., Blanchard, S., Stein, Z., Mandell, D., & Miller, C. (2006). Environmental mercury release, special education rates, and autism disorder: an ecological study of Texas. *Health & Place*, 12(2), 203-209.
- Parellada, M., Penzol, M. J., Pina, L., Moreno, C., González-Vioque, E., Zalsman, G., & Arango, C. (2014). The neurobiology of autism spectrum disorders. *European Psychiatry*, 29(1), 11-19.
- Pelé, F., Muckle, G., Costet, N., Garlantézec, R., Monfort, C., Multigner, L., ... & Cordier, S. (2013). Occupational solvent exposure during pregnancy and child behaviour at age 2. *Occupational and environmental medicine*, 70(2), 114-119.
- Perzanowski, M. S., Miller, R. L., Tang, D., Ali, D., Garfinkel, R. S., Chew, G. L., ... & Barr, R. G. (2010). Prenatal acetaminophen exposure and risk of wheeze at age 5 years in an urban low-income cohort. *Thorax*, 65(2), 118-123.
- Pessah, I. N., Seegal, R. F., Lein, P. J., LaSalle, J., Yee, B. K., Van De Water, J., & Berman, R. F. (2008). Immunologic and neurodevelopmental susceptibilities of autism. *Neurotoxicology*, 29(3), 532-545.
- Piwowarczyk, A., Horvath, A., Łukasik, J., Pisula, E., & Szajewska, H. (2018). Gluten-and casein-free diet and autism spectrum disorders in children: a systematic review. *European journal of nutrition*, 57(2), 433-440.
- Pollack, M. H., Jensen, J. E., Simon, N. M., Kaufman, R. E., & Renshaw, P. F. (2008). High-field MRS study of GABA, glutamate and glutamine in social anxiety disorder: response

to treatment with levetiracetam. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 32(3), 739-743.

Posadas, I., Santos, P., Blanco, A., Muñoz-Fernández, M., & Ceña, V. (2010). Acetaminophen induces apoptosis in rat cortical neurons. *PloS one*, 5(12), e15360.

Privett, D. (2013). Autism spectrum disorder—Research suggests good nutrition may manage symptoms. *Today's Dietitian*, 15(1), 46-51.

Rai, D., Lee, B. K., Dalman, C., Newschaffer, C., Lewis, G., & Magnusson, C. (2017). Antidepressants during pregnancy and autism in offspring: population based cohort study. *bmj*, 358, j2811.

Raz, R., Roberts, A. L., Lyall, K., Hart, J. E., Just, A. C., Laden, F., & Weisskopf, M. G. (2015). Autism spectrum disorder and particulate matter air pollution before, during, and after pregnancy: a nested case-control analysis within the Nurses' Health Study II cohort. *Environmental health perspectives*, 123(3), 264-270.

Reiner, J. L., Wong, C. M., Arcaro, K. F., & Kannan, K. (2007). Synthetic musk fragrances in human milk from the United States. *Environmental science & technology*, 41(11), 3815-3820.

Reissmann, A., Hauser, J., Makulska-Gertruda, E., Tomsa, L., & Lange, K. W. (2014). Gluten-free and casein-free diets in the treatment of autism. *Functional Foods in Health and Disease*, 4(8), 349-361.

Ribas-Fito, N., Torrent, M., Carrizo, D., Munoz-Ortiz, L., Julvez, J., Grimalt, J. O., & Sunyer, J. (2006). In utero exposure to background concentrations of DDT and cognitive functioning among preschoolers. *American journal of epidemiology*, 164(10), 955-962.

Ritvo, E. R., Freeman, B. J., Pingree, C., Mason-Brothers, A., & Jorde, L. (1989). The UCLA-University of Utah epidemiological survey of autism: Prevalence. *The American journal of psychiatry*, 146(2), 194.

Roberts, E. M., English, P. B., Grether, J. K., Windham, G. C., Somberg, L., & Wolff, C. (2007). Maternal residence near agricultural pesticide applications and autism

spectrum disorders among children in the California Central Valley. *Environmental health perspectives*, 115(10), 1482-1489.

Robinson, G. E. (2015). Controversies about the use of antidepressants in pregnancy. *The Journal of nervous and mental disease*, 203(3), 159-163.

Ross, G. (2004). The public health implications of polychlorinated biphenyls (PCBs) in the environment. *Ecotoxicology and environmental safety*, 59(3), 275-291.

Rossignol, D. A., Genuis, S. J., & Frye, R. E. (2014). Environmental toxicants and autism spectrum disorders: a systematic review. *Translational psychiatry*, 4(2), e360-e360.

Rubenstein, J. L. R., & Merzenich, M. M. (2003). Model of autism: increased ratio of excitation/inhibition in key neural systems. *Genes, Brain and Behavior*, 2(5), 255-267.

Συριοπούλου-Δελλή, Κ.Χ., (2020). Επαγγελματική κατάρτιση στις προσεγγίσεις επικοινωνίας και εκπαίδευσης ατόμων με διαταραχή στο φάσμα του αυτισμού. *Θέματα Ειδικής Αγωγής*, 87, 44-51.

Συριοπούλου-Δελλή, Κ. Χ. (2016). *Εκπαίδευση και Ειδική Αγωγή Ατόμων με Διαταραχή Φάσματος Αυτισμού*. Θεσσαλονίκη: Εκδόσεις Πανεπιστημίου Μακεδονίας.

Συριοπούλου-Δελλή, Κ.Χ., Γκιόλντα, Ε., (2020). Ο ρόλος της τεχνολογίας στην ανάπτυξη κοινωνικών δεξιοτήτων σε μαθητές με διαταραχή στο φάσμα του αυτισμού (ΔΑΦ). *Θέματα Ειδικής Αγωγής*, 87, 52-72.

Samsel, A., & Seneff, S. (2015). Glyphosate, pathways to modern diseases III: Manganese, neurological diseases, and associated pathologies. *Surgical neurology international*, 6.

Samsel, A., & Seneff, S. (2013a). Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance. *Interdisciplinary toxicology*, 6(4), 159-184.

Samsel, A., & Seneff, S. (2013b). Glyphosate's suppression of cytochrome P450 enzymes and amino acid biosynthesis by the gut microbiome: pathways to modern diseases. *Entropy*, 15(4), 1416-1463.

Sathe, N., Andrews, J. C., McPheeters, M. L., & Warren, Z. E. (2017). Nutritional and dietary interventions for autism spectrum disorder: a systematic review. *Pediatrics*, 139(6).

- Schantz, S. L., Widholm, J. J., & Rice, D. C. (2003). Effects of PCB exposure on neuropsychological function in children. *Environmental health perspectives*, 111(3), 357-376.
- Schettler, T. E. D. (2006). Human exposure to phthalates via consumer products. *International journal of andrology*, 29(1), 134-139.
- Schultz, S. T. (2010). Can autism be triggered by acetaminophen activation of the endocannabinoid system? *Acta neurobiologiae experimentalis*, 70(2), 227-231.
- Schultz, S., DeSilva, M., Gu, T. T., Qiang, M., & Whang, K. (2012). Effects of the Analgesic Acetaminophen (Paracetamol) and its para-Aminophenol Metabolite on Viability of Mouse-Cultured Cortical Neurons. *Basic & clinical pharmacology & toxicology*, 110(2), 141-144.
- Schwartz, J. J., Koenig, C. M., & Berman, R. F. (2013). Using mouse models of autism spectrum disorders to study the neurotoxicology of gene-environment interactions. *Neurotoxicology and teratology*, 36, 17-35.
- Sealey, L. A., Hughes, B. W., Sriskanda, A. N., Guest, J. R., Gibson, A. D., Johnson-Williams, L., ... & Bagasra, O. (2016). Environmental factors in the development of autism spectrum disorders. *Environment international*, 88, 288-298.
- Shelton, J. F., Geraghty, E. M., Tancredi, D. J., Delwiche, L. D., Schmidt, R. J., Ritz, B., ... & Hertz-Pannier, I. (2014). Neurodevelopmental disorders and prenatal residential proximity to agricultural pesticides: the CHARGE study. *Environmental health perspectives*, 122(10), 1103-1109.
- Shelton, J. F., Hertz-Pannier, I., & Pessah, I. N. (2012). Tipping the balance of autism risk: potential mechanisms linking pesticides and autism. *Environmental health perspectives*, 120(7), 944-951.
- Shutoh, Y., Takeda, M., Ohtsuka, R., Haishima, A., Yamaguchi, S., Fujie, H., ... & Harada, T. (2009). Low dose effects of dichlorodiphenyltrichloroethane (DDT) on gene transcription and DNA methylation in the hypothalamus of young male rats: implication of hormesis-like effects. *The Journal of toxicological sciences*, 34(5), 469-482.

- Smith, J. D. (2013). Autism: a natural fit for the clinical nutritionist and complementary and alternative medicine (CAM). *Nutr Perspect: J Council Nutr*, 36(2), 5-8.
- Sopori, M. (2002). Effects of cigarette smoke on the immune system. *Nature Reviews Immunology*, 2(5), 372-377.
- Soto, A. M., Chung, K. L., & Sonnenschein, C. (1994). The pesticides endosulfan, toxaphene, and dieldrin have estrogenic effects on human estrogen-sensitive cells. *Environmental health perspectives*, 102(4), 380-383.
- Stein, T. P., Schluter, M. D., Steer, R. A., Guo, L., & Ming, X. (2015). Bisphenol A exposure in children with autism spectrum disorders. *Autism Research*, 8(3), 272-283.
- Stellman, J. M., Stellman, S. D., Weber, T., Tomasallo, C., Stellman, A. B., & Christian Jr, R. (2003). A geographic information system for characterizing exposure to Agent Orange and other herbicides in Vietnam. *Environmental Health Perspectives*, 111(3), 321-328.
- Stewart, P. W., Lonky, E., Reihman, J., Pagano, J., Gump, B. B., & Darvill, T. (2008). The relationship between prenatal PCB exposure and intelligence (IQ) in 9-year-old children. *Environmental Health Perspectives*, 116(10), 1416-1422.
- Syriopoulou-Delli, C. K., Agaliotis, I., & Papaefstathiou, E. (2018). Social skills characteristics of students with autism spectrum disorder. *International Journal of Developmental Disabilities*, 64(1), 35-44.
- Tai, P.T., Nishijo, M., Kido, T., Nakagawa, H., Maruzeni, S., Naganuma, R., ... & Hung, N. N. (2011). Dioxin concentrations in breast milk of Vietnamese nursing mothers: a survey four decades after the herbicide spraying. *Environmental science & technology*, 45(15), 6625-6632.
- Talbott, E. O., Arena, V. C., Rager, J. R., Clougherty, J. E., Michanowicz, D. R., Sharma, R. K., & Stacy, S. L. (2015). Fine particulate matter and the risk of autism spectrum disorder. *Environmental Research*, 140, 414-420.
- Talsness, C. E., Andrade, A. J., Kuriyama, S. N., Taylor, J. A., & Vom Saal, F. S. (2009). Components of plastic: experimental studies in animals and relevance for human

health. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364(1526), 2079-2096.

Testa, C., Nuti, F., Hayek, J., De Felice, C., Chelli, M., Rovero, P., ... & Papini, A. M. (2012). Di-(2-ethylhexyl) phthalate and autism spectrum disorders. *ASN neuro*, 4(4), AN20120015.

Thiele, K., Kessler, T., Arck, P., Erhardt, A., & Tiegs, G. (2013). Acetaminophen and pregnancy: short-and long-term consequences for mother and child. *Journal of reproductive immunology*, 97(1), 128-139.

Thompson, J. M., Waldie, K. E., Wall, C. R., Murphy, R., Mitchell, E. A., & ABC Study Group. (2014). Associations between acetaminophen use during pregnancy and ADHD symptoms measured at ages 7 and 11 years. *PloS one*, 9(9), e108210.

Tran, N. N., Pham, T. T., Ozawa, K., Nishijo, M., Nguyen, A. T. N., Tran, T. Q., ... & Nishino, Y. (2016). Impacts of perinatal dioxin exposure on motor coordination and higher cognitive development in Vietnamese preschool children: a five-year follow-up. *PloS one*, 11(1).

Van Agteren, M. H., Keuning, S., & Janssen, D. (2013). *Handbook on biodegradation and biological treatment of hazardous organic compounds* (Vol. 2). Springer Science & Business Media.

Ventrice, P., Ventrice, D., Russo, E., & De Sarro, G. (2013). Phthalates: European regulation, chemistry, pharmacokinetic and related toxicity. *Environmental toxicology and pharmacology*, 36(1), 88-96.

Veroniki, A. A., Rios, P., Cogo, E., Straus, S. E., Finkelstein, Y., Kealey, R., ... & Hemmelgarn, B. R. (2017). Comparative safety of antiepileptic drugs for neurological development in children exposed during pregnancy and breast feeding: a systematic review and network meta-analysis. *BMJ open*, 7(7), e017248.

Volk, H. E., Lurmann, F., Penfold, B., Hertz-Pannier, I., & McConnell, R. (2013). Traffic-related air pollution, particulate matter, and autism. *JAMA psychiatry*, 70(1), 71-77.

- Volk, H. E., Hertz-Pannier, I., Delwiche, L., Lurmann, F., & McConnell, R. (2011). Residential proximity to freeways and autism in the CHARGE study. *Environmental health perspectives*, 119(6), 873-877.
- Von Ehrenstein, O. S., Ling, C., Cui, X., Cockburn, M., Park, A. S., Yu, F., ... & Ritz, B. (2019). Prenatal and infant exposure to ambient pesticides and autism spectrum disorder in children: population based case-control study. *BmJ*, 364.
- Von Ehrenstein, O. S., Aralis, H., Cockburn, M., & Ritz, B. (2014). In utero exposure to toxic air pollutants and risk of childhood autism. *Epidemiology (Cambridge, Mass.)*, 25(6), 851.
- Voorhees, J. R., Rohlman, D. S., Lein, P. J., & Pieper, A. A. (2017). Neurotoxicity in preclinical models of occupational exposure to organophosphorus compounds. *Frontiers in neuroscience*, 10, 590.
- Walkowiak, J., Wiener, J. A., Fastabend, A., Heinzow, B., Krämer, U., Schmidt, E., ... & Winneke, G. (2001). Environmental exposure to polychlorinated biphenyls and quality of the home environment: effects on psychodevelopment in early childhood. *The Lancet*, 358(9293), 1602-1607.
- Wang, S., Ang, H. M., & Tade, M. O. (2007). Volatile organic compounds in indoor environment and photocatalytic oxidation: state of the art. *Environment international*, 33(5), 694-705.
- Wei, H., Liang, F., Meng, G., Nie, Z., Zhou, R., Cheng, W., ... & Wang, Y. (2016). Redox/methylation mediated abnormal DNA methylation as regulators of ambient fine particulate matter-induced neurodevelopment related impairment in human neuronal cells. *Scientific reports*, 6, 33402.
- Wigle, D. T., Arbuckle, T. E., Walker, M., Wade, M. G., Liu, S., & Krewski, D. (2007). Environmental hazards: evidence for effects on child health. *Journal of toxicology and environmental health, part B*, 10(1-2), 3-39.
- Windham, G. C., Zhang, L., Gunier, R., Croen, L. A., & Grether, J. K. (2006). Autism spectrum disorders in relation to distribution of hazardous air pollutants in the San Francisco Bay area. *Environmental health perspectives*, 114(9), 1438-1444.

- Winneke, G. (2011). Developmental aspects of environmental neurotoxicology: lessons from lead and polychlorinated biphenyls. *Journal of the neurological sciences*, 308(1-2), 9-15.
- Wu, G., Bazer, F. W., Cudd, T. A., Meininger, C. J., & Spencer, T. E. (2004). Maternal nutrition and fetal development. *The Journal of nutrition*, 134(9), 2169-2172.
- Ye, B. S., Leung, A. O. W., & Wong, M. H. (2017). The association of environmental toxicants and autism spectrum disorders in children. *Environmental pollution*, 227, 234-242.
- Yui, K., Koshiba, M., Nakamura, S., & Kobayashi, Y. (2012). Effects of large doses of arachidonic acid added to docosahexaenoic acid on social impairment in individuals with autism spectrum disorders: a double-blind, placebo-controlled, randomized trial. *Journal of clinical psychopharmacology*, 32(2), 200-206.
- Zablotsky, B., Black, L. I., Maenner, M. J., Schieve, L. A., & Blumberg, S. J. (2015). Estimated prevalence of autism and other developmental disabilities following questionnaire changes in the 2014 National Health Interview Survey.
- Zhong, H., Xiao, R., Ruan, R., Liu, H., Li, X., Cai, Y., ... & Fan, X. (2020). Neonatal curcumin treatment restores hippocampal neurogenesis and improves autism-related behaviors in a mouse model of autism. *Psychopharmacology*, 1-14.
- Zimmerman, A. W., Jyonouchi, H., Comi, A. M., Connors, S. L., Milstien, S., Varsou, A., & Heyes, M. P. (2005). Cerebrospinal fluid and serum markers of inflammation in autism. *Pediatric neurology*, 33(3), 195-201.