

Prof. Christina G. Siontorou

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Education	<p>2000: PhD in Analytical Chemistry. Dpt Chemistry, National and Kapodistrian University of Athens. Thesis title: Construction of stabilized bilayer lipid membrane biosensors (2000)</p> <p>1993: BSc (Hons) Biomedical Sciences, University of Sunderland, UK (1993) – recognition received from the Hellenic National Academic Recognition Information Centre: 22/4/1994</p>
Academic Positions	<p>Faculty Appointments</p> <p>Subject: Design of Chemical Technology Products</p> <ul style="list-style-type: none">• 10/2023-current: Professor (OGG 2984/Γ'/10-11-2023)• 08/2018-10/2023: Assoc. Professor (OGG 879/Γ'/6-8-2018)• 12/2013-08/2018: Assist. Professor on Tenure (OGG 1420/Γ'/6-12-2013)• 12/2008-11/2013: Lecturer (OGG 1140/Γ'/22-12-2008)• 10/2003-08/2007: Adjunct Lecturer (under Presidential Decree 407/80) <p>Other Appointments</p> <ul style="list-style-type: none">• Oct/2004-Jul/2006 & Oct/2009-current: Part-time tutor at the School of Social Sciences of the Hellenic Open University (distant learning). <p>Subject: total quality management, environmental management</p> <ul style="list-style-type: none">• Oct/2003-Sep/2005: Laboratory Associate, Department of Textile Engineering, Technological Educational Institute of Piraeus. <p>Subject: electrochemistry, chemical kinetics (lectures & lab)</p>
Professional Experience	<ul style="list-style-type: none">• Sep/1999-Aug/2003: Pharmaceutical Enterprise Consultant, Pharmassist, Contract Research Organization <p>Subject: regulatory affairs (national & EU), product development, pharmacovigilance, clinical trials, regarding medicinal products for human use, herbals, homeopathic drugs and food supplements, industrial cleaners, disinfectants and biocides</p> <ul style="list-style-type: none">• Sep/1998-Aug/1999: Regulatory Affairs and R&D Department, ELPEN S.A. Pharmaceutical Industry

	<p>Subject: regulatory affairs (national), product development, drug analysis, analytical development, evaluation of manufacturing processes, pharmaceutical legislation</p>						
<p>Research Overview</p>	<ul style="list-style-type: none"> 69 publications, incl. 56 in Web of Science™ journals 45 publications in International Conference Proceedings after peer review 12 Chapters in books (invited) published by CRC Press, Kluwer, Springer, Wiley, Blackwell, Elsevier, Academic Press Impact indicators (11/3/2023, self-citations excl.) <table> <tr> <td>Web of Science™</td><td>1113 citations, <i>h</i>-index=23</td></tr> <tr> <td>Scopus</td><td>1676 citations, <i>h</i>-index=24</td></tr> <tr> <td>Google scholar</td><td>2468 citations, <i>h</i>-index=27</td></tr> </table> <ul style="list-style-type: none"> 39.1% (9 papers) in the top 25% most cited documents worldwide Member of the Editorial Board of Biosensors MDPI Participation in 6 EU research programs Reviewer in 13 scientific journals of Dove, Elsevier, Springer, Taylor & Francis, Wiley, on environmental management, environmental monitoring, drug design, clinical diagnostics, electrochemistry, biotechnology, toxicology 5th prize in the 1st i-Bank Innovation and Technology Competition of National Bank of Greece (2011) 	Web of Science™	1113 citations, <i>h</i> -index=23	Scopus	1676 citations, <i>h</i> -index=24	Google scholar	2468 citations, <i>h</i> -index=27
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Google scholar	2468 citations, <i>h</i> -index=27						
<p>Teaching</p>	<p>Department of Industrial Management & Technology</p> <ul style="list-style-type: none"> PhDs: 2 concluded Master theses: 3 in process, 64 concluded Undergraduate level (current) <ul style="list-style-type: none"> Introduction to Physical Sciences (1st sem.) Laboratory of Industrial Technology (2nd sem.) Chemical Industries I (3rd sem.) Chemical Industries II (4th sem.) Research Methodology (7th sem.) Biotechnology (8th sem.) Postgraduate level (current) <ul style="list-style-type: none"> Climate Change & Sustainability (1st sem.) Environmental Standards & Certifications (2nd sem.) <p>Hellenic Open University, School of Social Sciences, Business Administration Program</p> <ul style="list-style-type: none"> Undergraduate level (current) 						

	<ul style="list-style-type: none"> • Total Quality Management and Environmental Management (4th year of study)
Administration Appointments	<p>Department of Industrial Management & Technology</p> <p><i>current</i></p> <ul style="list-style-type: none"> • Member of the Internal Evaluation Team of the Department • Member of the Curriculum Committee • Academic Advisor for students at the 4+1 year of study <p><i>past</i></p> <ul style="list-style-type: none"> • Member of the Deanery Office • Deputy Director of postgraduate studies <p>University of Piraeus</p> <p><i>past</i></p> <ul style="list-style-type: none"> • Member of the Quality Assurance Unit <p>Hellenic Open University, School of Social Sciences, Business Administration Program</p> <p><i>current</i></p> <ul style="list-style-type: none"> • Assistant coordinator for Total Quality Management module
Research Interests & Activities	<p>Basic and applied research</p> <ul style="list-style-type: none"> • Design and development of measuring devices for environmental, industrial and (bio)medical monitoring: lab analyzers, field sensors, nanosensors, dual sensors, multi-arrays, biomonitoring networks. • Design of industrial and clinical biotechnology products, putting emphasis on the optimization of physicochemical parameters. • Protection of environmental systems: system modeling, air pollution, wastewater management, environmental quality assessment, environmental monitoring. • Knowledge management: ontology platforms, fault tree analysis, technology transfer, innovation, R&D • Technology roadmapping: technology evaluation, technology trajectory, university-industry alliance <p>Research programs</p> <ul style="list-style-type: none"> • THALIS –Development of novel adsorbents from biomass for managing hydrocarbons spill in aquatic environments (1/10/11- 30/09/2015) – Dept. Industrial Management & Technology. Position: member of the principle investigator team. • PITHAGORAS II EU-GR (Environment) (2005-2007) – Design, development and implementation of bioindicators/biosensors – Dept. Industrial Management & Technology. Position: Principle Researcher.

	<ul style="list-style-type: none"> • University of Coimbra, Portugal (1998) – Biosensors - European Science Foundation. Position: Visiting Researcher • INCO-COPERNICUS Project IC15-CT96-0804 - Biosensors for direct Monitoring of Environmental Pollutants in the Field (1996-1998) –Dept. Chemistry, Athens University. Position: Researcher • COPERNICUS CIPA CT-94-0231 - Novel biosensors based on bilayer lipid membranes for the determination of compounds of biomedical pharmaceutical, environmental and industrial interest (1994-1997) – Dept. Chemistry, Athens University. Position: Researcher • COMET – Biochemical diagnosis of thyroid diseases (1991-1992). Dept. Endocrinology, School of Medicine, Athens University. Position: research Assistant
Publications	<p>Publications in Web of Science™ journals</p> <ol style="list-style-type: none"> (1) Kaiseroglou, N., Sfakianaki, E., Siontorou, C. (2024). Evaluation and total quality management: the case of primary education. <i>TQM Journal</i> https://doi.org/10.1108/TQM-05-2024-0165 (2) Siontorou, C.G. (2023). Fair development transition of lignite areas: key challenges and sustainability prospects. <i>Sustainability</i>, 15, 12323. https://doi.org/10.3390/su151612323 (3) Siontorou, C.G., Georgopoulos, K.N. (2021). Metal-supported self-assembled bilayer lipid membrane incorporated with peroxidase for the detection of peroxide. <i>Results in Engineering</i> 12, 100312. https://doi.org/10.1016/j.rineng.2021.100312 (4) Siontorou, C.G., Georgopoulos, K.N. (2021). Boosting the advantages of biosensors: Niche applicability and fitness for environmental purpose. <i>Trends in Environmental Analytical Chemistry</i> 32, e00146. https://doi.org/10.1016/j.teac.2021.e00146 (5) Siontorou, C.G., Georgopoulos, K.N. (2021). A Ready-to-Use Metal-Supported Bilayer Lipid Membrane Biosensor for the Detection of Phenol in Water. <i>Membranes</i> 11, 871. https://doi.org/10.3390/membranes11110871 (6) Nikoleli, G.-P., Nikolelis, D., Siontorou, C.G., Nikolelis, M.T., Bratakou, S., Bendos, D.K. (2019). Recent lipid membrane-based biosensing platforms. <i>Applied Sciences – Basel</i>, 9, 1745. https://doi.org/10.3390/app9091745 (7) Nikoleli, G.-P., Nikolelis, D., Siontorou, C.G., Nikolelis, M.T., Karapetis, S. (2018). The application of lipid membranes in biosensing. <i>Membranes</i>, 8, 108. https://doi.org/10.3390/membranes8040108 (8) Nikoleli, G.-P., Nikolelis, D., Siontorou, C.G., Nikolelis, M.T., Karapetis, S. (2018). Potentiometric biosensing applications of graphene electrodes with stabilized polymer lipid membranes. <i>Chemosensors</i>, 6, 25. https://doi.org/10.3390/chemosensors6030025 (9) Nikoleli, G.-P., Nikolelis, D., Siontorou, C.G., Karapetis, S., Nikolelis, M.T. (2018). Application of biosensors based on lipid membranes for the rapid detection of toxins. <i>Biosensors – Basel</i>, 8, 61. https://doi.org/10.3390/bios8030061 (10) Nikoleli, G.-P., Nikolelis, D., Siontorou, C.G., Karapetis, S. (2018). Lipid membrane nanosensors for environmental monitoring: the art, the opportunities, and the challenges. <i>Sensors</i>, 18, 284. https://doi.org/10.3390/s1801028 (11) Siontorou, C.G., Nikoleli, G.-P., Nikolelis, D.P., Karapetis, S.K. (2017). Artificial lipid membranes: past, present, and future. <i>Membranes</i>, 7, 38. https://doi.org/10.3390/membranes7030038

- (12) Bratakou, S., Nikoleli, G.-P., **Siontorou, C.G.**, Nikolelis, D.P., Karapetis, S.K., Tzamtzis, N. (2017). Development of an electrochemical biosensor for the rapid detection of saxitoxin based on air stable lipid films with incorporated anti-STX using graphene electrodes. *Electroanalysis*, 29, 990-997. <https://doi.org/10.1002/elan.201600652>
- (13) **Siontorou, C.G.**, Keramidas, V.T., Nikoleli, G.-P., Nikolelis, D.P., Karapetis, S., Bratakou, S., Tzamtzis, N. (2017). Nano-enabled medical devices based on biosensing principles: Technology basis and new concepts. *AIMS Materials Science*, 4, 250-266. <https://doi.org/10.3390/c3010009>
- (14) Nikoleli, G.-P., **Siontorou, C.G.**, Nikolelis, D.P., Bratakou, S., Karapetis, S., Tzamtzis, N. (2017). Biosensors based on lipid modified graphene microelectrodes. *C-Journal of Carbon Research*, 3, 3010009. <https://doi.org/10.3390/c3010009>
- (15) **Siontorou, C.G.**, Georgopoulos, K.N., Nalantzi, M.-M. (2017). Designing biosensor networks for environmental risk assessment of aquatic systems. *Critical Reviews in Environmental Science and Technology*, 47, 40-63. <https://doi.org/10.1080/10643389.2016.1278141>.
- (16) Bratakou, S., Nikoleli, G.-P., **Siontorou, C.G.**, Nikolelis, D.P., Tzamtzis, N. (2016). Electrochemical biosensor for naphthalene acetic acid in fruits and vegetables based on lipid films with incorporated auxin-binding protein receptor using graphene electrodes. *Electroanalysis* 28, 2171-2177. <https://doi.org/10.1002/elan.201600152>
- (17) **Siontorou, C.G.**, Georgopoulos, K.N., Nikoleli, G.-P., Nikolelis, D.P., Karapetis, S.K., Bratakou, S. (2016). Protein-based graphene biosensors: optimizing artificial chemoreception in bilayer lipid membranes. *Membranes*, 6, 43. <https://doi.org/10.3390/membranes6030043>
- (18) Karapetis, S., Nikoleli, G.-P., **Siontorou, C.G.**, Nikolelis, D.P., Tzamtzis, N., Psaroudakis, N. (2016). Development of an electrochemical biosensor for the rapid detection of cholera toxin based on air stable lipid films with incorporated ganglioside GM1 using graphene electrodes. *Electroanalysis*, 28, 1584-1590. <https://doi.org/10.1002/elan.201501134>
- (19) **Siontorou, C.G.**, Georgopoulos, K.N. (2016). A biosensor platform for soil management: the case of nitrites. *Journal of Cleaner Production*, 111, 133-142. <https://doi.org/10.1016/j.jclepro.2015.07.038>
- (20) **Siontorou, C.G.**, Batzias, F.A. (2014). Determining the sources of measurement uncertainty in environmental cell-based biosensing. *IEEE Transactions on Instrumentation and Measurement*, 63, 794-804. <https://doi.org/10.1109/TIM.2013.2283161>
- (21) **Siontorou, C.G.** (2013). Nanobodies as novel agents for disease diagnosis and therapy. *International Journal of Nanomedicine*, 8, 4215-4227. <https://doi.org/10.2147/IJN.S39428>
- (22) **Siontorou, C.G.**, Batzias, F.A. (2013). A methodological combined framework for roadmapping biosensor research: a fault tree analysis approach within a strategic technology evaluation frame. *Critical Reviews in Biotechnology*, 34, 31-55. <https://doi.org/10.3109/07388551.2013.790339>
- (23) Michaloliakos, A.I., Nikoleli, G.P., **Siontorou, C.G.**, Nikolelis, D.P. (2012). Rapid flow injection electrochemical detection of Arochlor 1242 using stabilized lipid membranes with incorporated sheep anti-PCB antibody. *Electroanalysis*, 24, 495-501. <https://doi.org/10.1002/elan.201100393>
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- (26) Batzias, F.A., **Siontorou, C.G.**, Spanidis, P. M.-P. (2011). Designing a reliable leak bio-detection system for natural gas pipelines. *Journal of Hazardous Materials*, 186, 35-58. <https://doi.org/10.1016/j.jhazmat.2010.09.115>
 - (27) **Siontorou, C.G.**, Batzias, F.A., Tsakiri, V. (2010). A knowledge-based approach to online fault diagnosis of FET biosensors. *IEEE Transactions on Instrumentation and Measurement*, 59, 2345-2364. <https://doi.org/10.1109/TIM.2009.2036464>
 - (28) **Siontorou, C.G.**, Batzias, F.A. (2010). Innovation in biotechnology: moving from academic research to product development – The case of biosensors. *Critical Reviews in Biotechnology*, 30, 79-98. <https://doi.org/10.3109/07388550903427298>
 - (29) Batzias, F.A., **Siontorou, C.G.** (2009). Measuring uncertainty in lichen biomonitoring of atmospheric pollution: The case of SO₂. *IEEE Transactions on Instrumentation and Measurement*, 58, 3207-3220. <https://doi.org/10.1109/TIM.2009.2017162>
 - (30) **Siontorou, C.G.**, Batzias, F.A. (2008). Carbohydrate detection failure analysis via biosensing. *IEEE Transactions on Instrumentation and Measurement*, 57, 2856-2867. <https://doi.org/10.1109/TIM.2008.926051>
 - (31) Batzias, A.F., **Siontorou, C.G.** (2008). A new scheme for biomonitoring heavy metal concentrations in semi-natural wetlands. *Journal of Hazardous Materials*, 158, 340-358. <https://doi.org/10.1016/j.jhazmat.2008.01.092>
 - (32) Batzias, F.A., **Siontorou, C.G.** (2007). A novel system for environmental monitoring through a cooperative/ synergistic scheme between bioindicators and biosensors. *Journal of Environmental Management*, 82, 221-239. <https://doi.org/10.1016/j.jenvman.2005.12.023>
 - (33) Batzias, F.A., **Siontorou, C.G.** (2006). A knowledge-based approach to environmental biomonitoring. *Environmental Monitoring and Assessment*, 123, 167-197. <https://doi.org/10.1007/s10661-006-9190-0>
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 - (35) Nikolelis, D.P., Raftopoulou, G., **Siontorou, C.G.** (2005). Preparation of a selective receptor for ephedrine for the rapid electrochemical detection of ephedrine in human urine using stabilized in air lipid films with incorporated ephedrine receptor. *Electroanalysis*, 17, 1870-1877. <https://doi.org/10.1002/elan.200503317>
 - (36) Nikolelis, D.P., **Siontorou, C.G.**, Theoharis, G., Bitter, N. (2005). Flow injection analysis of mixtures of dopamine, adrenaline and ephedrine in human biofluids using stabilized after storage in air lipid membranes with a novel incorporated resorcin[4]arene receptor. *Electroanalysis*, 17, 887-894. <https://doi.org/10.1002/elan.200403168>
 - (37) Nikolelis, D.P., Simantiraki, M.G., **Siontorou, C.G.**, Toth, K. (2005). Flow injection analysis of carbofuran in foods using air stable lipid film based acetylcholinesterase biosensor. *Analytica Chimica Acta*, 537, 169-177. <https://doi.org/10.1016/j.aca.2004.12.086>
 - (38) **Siontorou, C.G.**, Andreou, V.G., Nikolelis, D.P., Krull, U.J. (2000). Flow injection monitoring of aflatoxin M-1 in cheese using filter-supported bilayer lipid membranes with incorporated DNA. *Electroanalysis* 12, 747-751. [https://doi.org/10.1002/1521-4109\(200006\)12:10<747::AID-ELAN747>3.0.CO;2-F](https://doi.org/10.1002/1521-4109(200006)12:10<747::AID-ELAN747>3.0.CO;2-F)
 - (39) **Siontorou, C.G.**, Nikolelis, D.P., Krull, U.J. (2000). Flow injection monitoring and analysis of mixtures of hydrazine compounds using filter-supported

- bilayer lipid membranes with incorporated DNA. *Analytical Chemistry*, 72, 180-186. <https://doi.org/10.1021/ac990618v>
- (40) **Siontorou, C.G.**, Nikolelis, D.P., Tarus, B., Dumbrava, J., Krull, U.J. (1998). DNA biosensor based on self-assembled bilayer lipid membranes for the detection of hydrazines. *Electroanalysis*, 10, 691-694. [https://doi.org/10.1002/\(SICI\)1521-4109\(199808\)10:10<691::AID-ELAN691>3.0.CO;2-N](https://doi.org/10.1002/(SICI)1521-4109(199808)10:10<691::AID-ELAN691>3.0.CO;2-N)
- (41) **Siontorou, C.G.**, Nikolelis, D.P., Miernik, A., Krull, U.J. (1998). Rapid methods for detection of Aflatoxin M-1 based on electrochemical transduction by self-assembled metal-supported bilayer lipid membranes (s-BLMs) and on interferences with transduction of DNA hybridization. *Electrochimica Acta*, 43, 3611-3617. [https://doi.org/10.1016/S0013-4686\(98\)00108-X](https://doi.org/10.1016/S0013-4686(98)00108-X)
- (42) Katrivanos, P.L., Purnell, A.J., Aleksandridis, A.A., **Siontorou, C.G.**, White, C. (1998). An integrated system connected to biosensing systems based on self-assembled metal-supported bilayer lipid membranes. *Laboratory Robotics and Automation* 1998;10:239-246. [https://doi.org/10.1002/\(SICI\)1098-2728\(1998\)10:4<239::AID-LRA7>3.0.CO;2-5](https://doi.org/10.1002/(SICI)1098-2728(1998)10:4<239::AID-LRA7>3.0.CO;2-5)
- (43) **Siontorou, C.G.**, Nikolelis, D.P. (1997). Cyanide ion minisensor based on methemoglobin incorporated in metal supported self-assembled bilayer lipid membranes and modified with platelet-activating factor. *Analytica Chimica Acta*, 355, 227-234. [https://doi.org/10.1016/S0003-2670\(97\)00510-2](https://doi.org/10.1016/S0003-2670(97)00510-2)
- (44) **Siontorou, C.G.**, Nikolelis, D.P., Krull, U.J. (1997). A carbon dioxide biosensor based on hemoglobin incorporated in metal supported bilayer lipid membranes (BLMs): Investigations for enhancement of response characteristics by using platelet-activating factor. *Electroanalysis*. 9, 1043-1048. <https://doi.org/10.1002/elan.1140091403>
- (45) **Siontorou, C.G.**, Nikolelis, D.P., Piunno, P.A.E., Krull, U.J. (1997). Detection of DNA hybridization using self-assembled bilayer lipid membranes (BLMs). *Electroanalysis*, 9, 1067-1071. <https://doi.org/10.1002/elan.1140091407>
- (46) Novotny, I., Rehacek, V., Tvarozek, V., Nikolelis, D.P., Andreou, V.G., **Siontorou, C.G.**, Ziegler, W. (1997). Stabilized bilayer lipid membranes (BLMs) on agar thin film electrode system support. *Materials Science & Engineering C-Biomimetic Materials Sensors and Systems*, 5, 55-58. [https://doi.org/10.1016/S0928-4931\(97\)00022-2](https://doi.org/10.1016/S0928-4931(97)00022-2)
- (47) **Siontorou, C.G.**, Nikolelis, D.P., Krull, U.J., Chiang, K.L. (1997). A triazine herbicide minisensor based on surface-stabilized bilayer lipid membranes. *Analytical Chemistry*, 69, 3109-3114. <https://doi.org/10.1021/ac970113>
- (48) Nikolelis, D.P., **Siontorou, C.G.** (1997). Hemoglobin modified bilayer lipid membranes (BLMs) biosensor for carbon dioxide detection. *Bioelectrochemistry* (ex. *Bioelectrochemistry and Bioenergetics*), 42, 71-75. [https://doi.org/10.1016/S0302-4598\(96\)05141-0](https://doi.org/10.1016/S0302-4598(96)05141-0)
- (49) Nikolelis, D.P., **Siontorou, C.G.** (1997). Stabilized filter-supported bilayer lipid membranes (BLMs) for automated flow monitoring of compounds of clinical, pharmaceutical, environmental and industrial interest. *Journal of Analytical Methods in Chemistry* (ex. *Automated Methods and Management in Chemistry*), 19, 1-8. <https://doi.org/10.1155/S1463924697000011>
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- (51) Nikolelis, D.P., **Siontorou, C.G.** (1996). Flow injection monitoring and analysis of mixtures of simazine, atrazine, and propazine using filter-

- supported bilayer lipid membranes (BLMs). *Electroanalysis*, 8, 907-912. <https://doi.org/10.1002/elan.1140081011>
- (52) **Siontorou, C.G.**, Brett, A.M.O., Nikolelis, D.P. (1996). Evaluation of a glassy carbon electrode modified by a bilayer lipid membrane with incorporated DNA. *Talanta*, 43, 1137-1144. [https://doi.org/10.1016/0039-9140\(96\)01881-4](https://doi.org/10.1016/0039-9140(96)01881-4)
- (53) Nikolelis, D.P., **Siontorou, C.G.**, Krull, U.J., Katrivanos, P.L. (1996). Ammonium ion minisensors from self-assembled bilayer lipid membranes using gramicidin as an ionophore. Modulation of ammonium selectivity by platelet-activating factor. *Analytical Chemistry*, 68, 1735-1741. <https://doi.org/10.1021/ac950403v>
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- (55) Nikolelis, D.P., **Siontorou, C.G.**, Andreou, V.G., Krull, U.J. (1995). Stabilized bilayer-lipid membranes for flow-through experiments. *Electroanalysis*, 7, 531-536. <https://doi.org/10.1002/elan.1140070605>
- (56) Nikolelis, D.P., **Siontorou, C.G.**, Bilayer-lipid membranes for flow-injection monitoring of acetylcholine, urea, and penicillin. *Analytical Chemistry*, 67, 936-944. <https://doi.org/10.1021/ac00101a022>

Chapters in Books

- (1) **Siontorou, C.G.** (2022). University-Industry Relationships for the Development and Commercialization of Biosensors. In: Thouand, G. (eds), *Handbook of Cell Biosensors*, Springer, Cham. https://link.springer.com/content/pdf/10.1007/978-3-030-23217-7_25.pdf
- (2) Nikoleli, G.-P., Nikolelis, D.P., **Siontorou, C.G.**, Nikolelis, M.-T., Karapetis, S. (2019). Applications of Lipid Membranes-Based Biosensors for the Rapid Detection of Food Toxicants and Environmental Pollutants. In: K  k, F.N., Yildiz, A.A., Inci, F. (eds), *Biomimetic Lipid Membranes: Fundamentals, Applications, and Commercialization*, Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-030-11596-8_12
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