

Dr. Asterios (Stergios) Pispas

Dr. Asterios (Stergios) Pispas is an expert in *polymer synthesis utilizing controlled polymerization techniques*, including anionic, RAFT, ATRP and cationic polymerizations. In the last 15 years, Dr Pispas and his group are using RAFT polymerization methodologies to *synthesize novel well-defined (co)polymers*. He has made valuable contributions to the synthesis of amphiphilic/double hydrophilic/thermo- and pH responsive block copolymers and synthetic polyelectrolytes, as well as their solution self-assembly, and co-assembly with other (macro)molecular species and inorganic entities (nucleic acids, proteins/peptides, surfactants, lipids, drugs and inorganic nanoparticles). **Successful synthesis of complex and well-defined macromolecular architectures, like triblock terpolymers, mikto-arm star copolymers, graft and hyperbranched copolymers via RAFT polymerization schemes has been presented in more than 40 publications.** Establishment of *relationships between macromolecular structure with physicochemical behavior and properties* at the molecular and supramolecular level in solutions, bulk state and on surfaces has been one of the major scientific outcomes so far.

A long-lasting goal pursued over the years is the determination of *ways to control supramolecular nanostructures* utilizing chemically designed macromolecules alone or in conjunction with functional biological/inorganic moieties. The *multifunctional and multicomponent nanostructures* he has developed, using also self-assembly principles with a variety of nano/biomaterials, have provided and established *novel physicochemical nanostructuring pathways*, and showed **innovative proofs of concept toward applications in the fields of nanomedicine, and drug/gene/protein delivery for therapeutics, bio-imaging, sensing and water treatment.**

His achievements in macromolecular systems and nanomaterials research are demonstrated by the large number of original publications in **high impact factor journals (>380)**, several **review articles** and **chapters in books**, the fruitful **collaborations** he has established with **>20 research groups** all over the world, the significant funding he has received, the recognition of his research accomplishments via a high number of **citations (~10,000)**, several invited talks and prestigious awards (e.g., ACS Doolittle Award, Distinguished Visiting Scholar of CPAM-PAN).

Dr. Pispas is Editor of *Polymers*, member of the EPJ and CPS Editorial Boards, of ERC and other EU, US, European and Greek evaluation panels.

Dr. Pispas activities has also included direct contracts with Greek pharmaceutical companies and three national patent applications (one awarded, two pending).

As further proof of his scientific accomplishments, Dr. Pispas was included in the Top 2% Scientists Worldwide in Chemistry in the field of Polymers for the years 2018-2021.

The total number of citations (excluding self-citations), according to the Web of: 9615 (8273)

The Hirsch index, according to the Web of Science: 43

The address of: Web of Science Researcher ID: DNM-5660-2022; ORCID: orcid.org/0000-0002-5347-7430

The most representative publications (max. 10)

Main author, Q1 classification:

Authors, Title of paper	Journal	IF
1. A. Chroni, A. Forys, T. Sentoukas, B. Trzebiecka, S. Pispas* , Poly[(vinyl benzyl trimethylammonium chloride)]-based nanoparticulate copolymer structures encapsulating insulin	Eur. Polym. J. 169, 111158, 2022 10.1016/j.eurpolymj.2022.111158	5.546
2. D. Selianitis, S. Pispas* , Multi-responsive poly(oligo(ethylene glycol) methyl methacrylate)-co-poly(2-(diisopropylamino)ethyl methacrylate) hyperbranched copolymers via reversible addition fragmentation chain transfer polymerization	Polym. Chem. 12, 6582, 2021 10.1039/D1PY01320C	5.364
3. D. Giaouzi, S. Pispas* , Complexation behavior of PNIPAM-b-QPDMAEA copolymer aggregates with linear DNAs of different lengths	Eur. Polym. J. 155, 110575, 2021 10.1016/j.eurpolymj.2021.110575	5.546
4. A. Skandalis, M. Uchman, M. Stepanek, S. Kereiche, S. Pispas* , Complexation of DNA with QPDMAEMA-b-PLMA-b-POEGMA cationic triblock terpolymer micelles	Macromolecules, 53, 5747, 2020 10.1021/acs.macromol.0c00388	6.057
5. A. Skandalis, A. Murmiliuk, M. Stepanek, S. Pispas* , Physicochemical evaluation of insulin complexes with QPDMAEMA-b-PLMA-b-POEGMA cationic amphiphilic triblock terpolymer micelles	Polymers, 12, 309, 2020 10.3390/polym12020309	4.967
6. A. Chroni, S. Pispas* , Hydrophilic/hydrophobic modifications of a PnBA-b-PDMAEA copolymer and complexation behavior with short DNA	Eur. Polym. J., 129, 109636, 2020 10.1016/j.eurpolymj.2020.109636	5.546
7. A. Papagiannopoulos, A. Meristoudi, S. Pispas* , U. Keiderling, Thermal response and self-organization in an amphiphilic triblock polyelectrolyte and the influence of the globular protein lysozyme	Eur. Polym. J., 99, 49, 2018 10.1016/j.eurpolymj.2017.12.005	5.546

8. A. Skandalis, A. Sergides, A. Bakandritsos, S. Pispas* , PLMA-b-POEGMA amphiphilic block copolymers as nanocarriers for the encapsulation of magnetic nanoparticles and indomethacin	Polymers, 10, 14, 2018 10.3390/polym10010014	4.967
9. E. Vlasi, A. Papagiannopoulos, S. Pispas* , Amphiphilic poly(2-oxazoline) copolymers as self-assembled carriers for drug delivery applications	Eur. Polym. J. 88, 516, 2017 (<i>Feature Article</i>) 10.1016/j.eurpolymj.2016.10.034	5.546
10. A. Skandalis, S. Pispas* , PDMAEMA-b-PLMA-b-POEGMA triblock terpolymers via RAFT polymerization and their self-assembly in aqueous solutions	Polym. Chem. 31, 4538, 2017 10.1039/c7py00905d	5.364

Projects that the project director has done as principal investigator/group leader

NANOMACRO – <i>Functional Self-assembled Nanostructures from Block Copolymers and Proteins</i> , ARISTEIA I, I.D.: 1129 GSRT, 2012-2015, principal investigator , 300K€*; http://eie.gr/nhrf/institutes/tpci/news-gr.html , https://www.demetzoslabs.gr/datafiles/file/Nanomacro.pdf
MAGNANODRUGS - <i>Development of multifunctional magnetic nanoparticles for the targeted delivery of anticancer drugs</i> , THALIS MIS: 380212, ID 563, Greek Ministry of Education, 2012-2015, Co-principal investigator , 110K€*
<i>Development of composite material and related processes of application and structural integrity monitoring for aerospace applications with potentiality for self-healing</i> ; THALIS MIS: 379412, ID 593, Greek Ministry of Education, 2012-2015, Task Leader , 25K€*.
REGPOT “POLINNOVA”, GA No. 316086, EU-FP 7, 2013-2015, Partner Group Leader & Member of the Scientific Advisory Board of the project , 120K€*. http://polinnova.polymer.bas.bg/en/partners/
Instruct-ULTRA, <i>Releasing the full potential of Instruct to expand and consolidate infrastructure services for integrated structural life science research</i> , EU-Horizon2020-INFRADEV-2016-2017, 2018-2020, Task Leader , 30K€*. https://cordis.europa.eu/project/id/731005
INSPIRED, <i>The National Research Infrastructures on Integrated Structural Biology, Drug Screening Efforts and Drug Target Functional Characterization</i> , GSRT, MIS 5002550, 2018-2022, Co-principal investigator /TPCI Group Leader and Member of the Governing Board , 40K€*. https://www.inspired-ris.gr/objectives_en.html
NANOSHIELD, New generation, safe, nanotechnological products to control plant diseases while improving plant health, GSRT-NSRF, MIS: 5067585, ID: T2EAK-02113, 2014-2020 -Cooperation of Industries with Research Organizations / Research – Create – Innovate / 2nd Call, 2020-2023, Co-principal investigator /TPCI Group Leader , 196K€*. http://eie.gr/nhrf/institutes/tpci/projects/TPCI_NANOSHIELD_project.pdf
<i>*Coordinated group funding is indicated only</i>

Patents
<i>Nanocarrier compositions</i> , Inventors: N. Pippa, C. Demetzos, S. Pispas , G. Sivolapenko, Applicant: ELPEN S.A, GR1008332 (21-10-2014).
<i>Liotropic lipid liquid crystal nanoparticles as nanocarrier systems for active pharmaceutical ingredients</i> , Inventors: K. Demetzos, A. Pispas , M. Chountoulesi, Applicant: UNI-PHARMA Kleon

Tsetis Pharmaceutical Laboratories S.A., Hellenic Industrial Property Organization (OBI), Appl. #: 20210100567, Date filed: 23.08.2021 (pending).
<i>Lyotropic liquid crystalline nanosystems with encapsulated bioactive macromolecules</i> , Inventors: K. Demetzos, A. Pispas , M. Chountoulesi, Applicant: UNI-PHARMA Kleon Tsetis Pharmaceutical Laboratories S.A., PCT/GR2022/00040, Date filed: 29.07.2022 (pending).
Invited presentations at international conferences (recent, selected)
9th World Congress on Chemistry and Medicinal Chemistry, Prague, Czech Republic (May 13-14, 2019). <i>Cationic block copolymers as carriers for proteins and nucleic acids</i> (keynote lecture)
1st Virtual European Polymer Conference (September 17-18, 2020). <i>Novel amphiphilic cationic block copolymers by RAFT and their complexes with DNA</i>
International Online Conference on Nano Materials-ICN 2021, Mahatma Gandhi University, Kottayam, Kerala, India (April 9-11, 2021). <i>Nanostructures from cationic block copolymers and DNA by electrostatic co-assembly</i> (plenary lecture)
International Online Conference on Macromolecules: Synthesis, Morphology, Processing, Structure, Properties and Applications-ICM 2021, Mahatma Gandhi University, Kerala, India (10-12.09. 2021). <i>Thermoresponsive copolymers of different macromolecular architectures by RAFT polymerization</i>
International Conference Progress in Organic and Macromolecular Compounds, 28th Edition, ICMPP, Iasi, Romania (October 7 - 9, 2021). <i>Responsive copolymers by RAFT polymerization as building blocks for constructing self-assembled bio-hybrid nanostructures</i>
The Silesian Meetings on Polymer Materials POLYMAT 2022, Zabrze, Poland (March 17, 2022). <i>Thermoresponsive linear and hyperbranched copolymers using RAFT polymerization</i>
Polymers 2022, Velingrad, Bulgaria (July 5-8, 2022). <i>Hyperbranched copolymers by RAFT: Synthesis and solution nano-assemblies</i> (plenary lecture)
7th Edition of the Smart Materials and Surfaces International Conference - SMS 2022, Athens, Greece (October 26-28, 2022). <i>Functional nanostructures based on smart copolymers</i> (keynote lecture)
Organization of international conferences
Member of the Organizing Committee: 34th European Colloids & Interface Society Conference (ECIS 2021), September 5-10, 2021, Athens, Greece
Member of the Organizing Committee: 13th International Greek Polymer Society Conference, December 12-16, 2021, Athens, Greece
Major contributions to the early careers of excellent researchers
Dr. Pispas' complementary educational and training activities are reflected in the supervision of 6 post-doctoral fellows, 17 Ph.D. and 18 Master students in the last 10 years (10 of them now continuing their careers in the industry sector and several others in academia). Former Postdoc and PhD student, Dr N. Pippa is now Assistant Professor at the School of Pharmacy, NKUA, Athens. Former Postdoc and PhD student Dr Theodoros Sentoukas is now Assistant Professor at the Centre for Polymer and Carbon Materials, PAN, Poland. Former PhD student Dr A. Skandalis is now Post-doc at Adolphe Merkle Institute, Switzerland, after a 2-year post-doc position at Imperial College London, UK. Several students and post-docs of the group have received national scholarships. Current research group includes 2 Post-docs, 7 PhD students and 5 Master students. Dr Pispas is co-supervisor in other 4 PhD theses.