

**Dr. Vasiliki Skamnaki**  
**Assistant Professor (Biochemistry-Metabolism), Department of Biochemistry and Biotechnology,**  
**University of Thessaly.**

Date of Birth: 3 December 1971  
Place of Birth: Athens, Greece  
Nationality: Greek  
Home address: Patr. Gregoriou 5th. 3, Larisa 42222 Greece  
Work address: Department of Biochemistry and Biotechnology, University of Thessaly, Biopolis 41500, Larisa, Greece  
E-mail: [vskamnaki@bio.uth.gr](mailto:vskamnaki@bio.uth.gr)  
Tel: +30 2410 565267.  
Webpage: <https://bio.uth.gr/professors/skamnaki-vasiliki/>

#### Education

2002- PhD Thesis. Department of Biology. National and Kapodistrian University of Athens.  
1995- BSc. Hons in Biochemistry. Department of Biochemistry and Molecular Biology, UCL, University of London.

#### Appointments

2019-Assistant Professor of Biochemistry-Metabolism, Department of Biochemistry and Biotechnology, University of Thessaly, Greece  
2013-Lecturer of Biochemistry-Metabolism, Department of Biochemistry and Biotechnology, University of Thessaly, Greece  
2012-Contract Lecturer (407/80) Department of Biochemistry and Biotechnology, University of Thessaly,  
2009-Postdoctoral Researcher Institute of Organic and Pharmaceutical Chemistry (IOPC), National Hellenic Research Foundation (NHRF), Athens Greece.  
2006-Postdoctoral Researcher Institute of Biology, NCSR Demokritos, Athens, Greece  
2002-Postdoctoral Researcher Laboratory of Molecular Biophysics. University of Oxford, UK.  
1995-Research Assistant. Institute of Biological Research and Biotechnology (IBRB), National Hellenic Research Foundation (NHRF), Athens, Greece.

#### Scientific Activities

Member of the Hellenic Crystallographic Association  
Member of the Hellenic Society of Biochemistry and Molecular Biology  
Member of the European Association for the Study of Diabetes (EASD)  
Associate editor in Structural Biology section for Frontiers in Molecular Biosciences

#### Supervising

Thus far, supervision 8 MSc Thesis and 14 Diploma Projects also member of Advisory Committee of 50 Diploma Projects and 37 MSc Thesis. Member of Advisory Committee of 8 PhD Thesis and Member of Examination Committee of 6 PhD Thesis.  
Current composition of the group (November 2024), 1 PhD student (supervision), 1 MSc student, 3 Undergraduates.

#### Research interests/publications

My research interests are focused in the study of molecular recognition mechanisms and structure-function relationships of proteins of carbohydrate metabolism with a therapeutic perspective, by applying modern molecular, *in vitro*, *ex vivo* biochemical and structural biology techniques.  
Peer Reviewed Publication number: **49**  
Citations (scopus source): **1741**  
h-index: **24**  
Proceedings: **46**  
Structures in Databases (NCBI/STRUCTURE): **101**  
Book chapters: **2**  
Orcid id <https://orcid.org/0000-0002-0870-3128>

#### Funding (last 5 years)

Partner in The National Research Infrastructure on Integrated Structural Biology, Drug Screening Efforts and Drug Target Functional Characterization-**INSPIRED-Thessaly**. Code 5002550

#### Book Chapters

**Skamnaki V.T.**, Kantsadi A.L., Chatzileontiadiou D.S.M., Stravodimos G.A, Leonidas

D.D. Glycogen Metabolism Enzymes as Molecular Targets for Drug Development. In "Glycogen: Structure, Functions in the Body and Role in Disease", edited by Pedro L. Weiss and Brian D. Faulkner: Biochemistry Research Trends, 2013

### Reviews

- Affinity Crystallography Reveals the Bioactive Compounds of Industrial Juicing Byproducts of *Punica granatum* for Glycogen Phosphorylase. Stravodimos, G. A., Kantsadi, A. L., Apostolou, A., Kyriakis, E., Kafaski-Kanelli, V. N., Solovou, T., Gatzona, P., Liggri, P. G. V., Theofanous, S., Gorgogietas, V. A., Kissa, A., Psachoula, C., Lemonakis, A., Chatzileontiadiou, D. S. M., Psarra, A. G., **Skamnaki, V. T.**, Haroutounian, S. A. & Leonidas, (2018) *Curr Drug Discov Technol.* 15, 41-53. DOI: [10.2174/1570163814666170619091736](https://doi.org/10.2174/1570163814666170619091736).
- Tsitsanou, K.E., Zographos, S.E., **Skamnaki, V.T.** & Oikonomakos, N.G. (1999). Molecular recognition in glycogen phosphorylase inhibitor design (review). *Review of Clinical Pharmacology and Pharmacokinetics*, **13**, 9-25

### Peer reviewed publication (last decade)

- Evidence for the quercetin binding site of glycogen phosphorylase as a target for liver isoform selective inhibitors against glioblastoma: flavanols epigallocatechin gallate (EGCG) and epigallocatechin (EGC) investigated. Serafeim Alexopoulos, Megan McAuley, Roshini Mathews, Souzana Papakostopoulou, Symeon Koulas, Demetres D. Leonidas, Tamara Zwain, Joseph M. Hayes and Vasiliki Skamnaki. *J Agric Food Chem.* 2024 Oct 30;72(43):24070-24081. doi: [10.1021/acs.jafc.4c06920](https://doi.org/10.1021/acs.jafc.4c06920). Epub 2024 Oct 21. PMID: 39433280.
- Biochemical and Structural Studies of LjSK1, a *Lotus japonicus* GSK3 $\beta$ /SHAGGY-like Kinase, Reveal Its Functional Role. Solovou TGA, Stravodimos G, Papadopoulos GE, **Skamnaki VT**, Papadopoulou K, Leonidas DD. *J Agric Food Chem.* 2024 Feb 21;72(7):3763-3772. doi: [10.1021/acs.jafc.3c07101](https://doi.org/10.1021/acs.jafc.3c07101). Epub 2024 Feb 8. PMID: 38330914
- The druggability of the ATP binding site of glycogen phosphorylase kinase probed by coumarin analogues. Alexopoulos, S., Gkouskou, A., Stravodimos, G., Tsagkarakou, A., Tsialtas, I., Katounis, D., Psarra, A.M.G., Leonidas, D., Brahmachari, G., Hayes, J., **Skamnaki, V.** (2022) *Current Research in Chemical Biology*. Volume 2, 100022 <https://doi.org/10.1016/j.crchbi.2022.100022>.
- Glycogen phosphorylase revisited: extending the resolution of the R- and T-state structures of the free enzyme and in complex with allosteric activators Leonidas, D.D., Zographos, S.E., Tsitsanou, K.E., **Skamnaki, V.T.**, Stravodimos, G., Kyriakis, E. (2021) *Acta Cryst. F Struct. Biol. Commun.* 77(Pt 9):303-311. [https://doi.org/10.1016/s0968-0896\(01\)00394-7](https://doi.org/10.1016/s0968-0896(01)00394-7).
- Mutagenesis of a *Lotus japonicus* GSK3 $\beta$ /Shaggy-like kinase reveals functionally conserved regulatory residues Solovou TGA, Garagounis C, Kyriakis E, Bobas C, Papadopoulos GE, **Skamnaki VT**, Papadopoulou KK, Leonidas DD. (2021). *Phytochemistry*. 186, 112707 DOI [10.1016/j.phytochem.2021.112707](https://doi.org/10.1016/j.phytochem.2021.112707)
- Novel diarylamides and diarylureas with N-substitution dependent activity against medulloblastoma Lawson C, Ahmed Alta TB, Moschou G, **Skamnaki V**, Solovou TGA, Topham C, Hayes J, Snape TJ. (2021). *Eur J. Med. Chem* Dec 5;225:113751. DOI: [10.1016/j.ejmech.2021.113751](https://doi.org/10.1016/j.ejmech.2021.113751)
- Affinity crystallography reveals anthocyanin binding at the inhibitor site of glycogen phosphorylase: The contribution of a sugar moiety to potency and its implications to the binding mode Drakou C, Gardeli C, Tsialtas I, Alexopoulos S, Mallouchos A, Koulas S, Tsagkarakou A, Asimakopoulos D, Leonidas D, Psarra AM & **Skamnaki V.** *J Agric Food Chem* 2020 Sep 16;68(37):10191-10199. doi: [10.1021/acs.jafc.0c04205](https://doi.org/10.1021/acs.jafc.0c04205)
- The architecture of hydrogen and sulfur sigma-hole interactions explain differences in the inhibitory potency of C-beta-d-glucopyranosyl thiazoles, imidazoles and an N-beta-d-glucopyranosyl tetrazole for human liver glycogen phosphorylase and offer new insights to structure-based design. Kyriakis, E., Karra, A. G., Papaioannou, O., Solovou, T., **Skamnaki, V. T.**, Liggri, P. G. V., Zographos, S. E., Szennyes, E., Bokor, E., Kun, S., Psarra, A. G., Somsak, L. & Leonidas, D.D. (2020) *Bioorg Med Chem.* 28, 115196. DOI: [10.1016/j.bmc.2019.115196](https://doi.org/10.1016/j.bmc.2019.115196)
- High Consistency of Structure-Based Design and X-Ray Crystallography: Design, Synthesis, Kinetic Evaluation and Crystallographic Binding Mode Determination of Biphenyl-N-acyl-beta-d-glucopyranosyl-amines as Glycogen Phosphorylase Inhibitors. Fischer, T., Koulas, S.M., Tsagkarakou, A. S., Kyriakis, E., Stravodimos, G. A., **Skamnaki, V. T.**, Liggri, P. G. V., Zographos, S. E., Riedl, R. & Leonidas, D. D. (2019) *Molecules.* 24. DOI: [10.3390/molecules24071322](https://doi.org/10.3390/molecules24071322)

- Glucopyranosylidene-spiro-imidazolinones, a New Ring System: Synthesis and Evaluation as Glycogen Phosphorylase Inhibitors by Enzyme Kinetics and X-ray Crystallography. Szabo, K. E., Kyriakis, E., Psarra, A. G., Karra, A. G., Sipos, A., Docsa, T., Stravodimos, G. A., Katsidou, E., **Skamnaki, V. T.**, Liggri, P. G. V., Zographos, S. E., Mandi, A., Kiraly, S. B., Kurtan, T., Leonidas, D. D. & Somsak, L. (2019) *J Med Chem.* 62, 6116-6136. DOI: [10.1021/acs.jmedchem.9b00356](https://doi.org/10.1021/acs.jmedchem.9b00356)
- Evidence for Novel Action at the Cell-Binding Site of Human Angiogenin Revealed by Heteronuclear NMR Spectroscopy, in silico and in vivo Studies. Chatzileontiadou, D. S. M., Tsika, A. C., Diamantopoulou, Z., Delbe, J., Badet, J., Courty, J., **Skamnaki, V. T.**, Parmenopoulou, V., Komiotis, D., Hayes, J. M., Spyroulias, G. A. & Leonidas, D. D. (2018) *ChemMedChem.* 13, 259- 269. DOI: [10.1002/cmdc.201700688](https://doi.org/10.1002/cmdc.201700688)
- A multidisciplinary study of 3-(beta-d-glucopyranosyl)-5-substituted-1,2,4-triazole derivatives as glycogen phosphorylase inhibitors: Computation, synthesis, crystallography and kinetics reveal new potent inhibitors. Kun, S., Begum, J., Kyriakis, E., Stamati, E. C. V., Barkas, T. A., Szennyes, E., Bokor, E., Szabo, K. E., Stravodimos, G. A., Sipos, A., Docsa, T., Gergely, P., Moffatt, C., Patraskaki, M. S., Kokolaki, M. C., Gkerdi, A., **Skamnaki, V. T.**, Leonidas, D. D., Somsak, L. & Leonidas, D. D. (2018) *Bioorg Chem* 77, 485-493. DOI: [10.1016/j.bioorg.2018.02.00](https://doi.org/10.1016/j.bioorg.2018.02.00)
- Nanomolar Inhibitors of Glycogen Phosphorylase Based on beta-d-Glucosaminyl Heterocycles: A Combined Synthetic, Enzyme Kinetic, and Protein Crystallography Study. Bokor, E., Kyriakis, E., Solovou, T. G. A., Koppány, C., Kantsadi, A. L., Szabo, K. E., Szakacs, A., Stravodimos, G. A. Docsa, T., **Skamnaki, V. T.**, Zographos, S. E., Gergely, P., Leonidas, D. D. & Somsak, L. (2017) *J Med Chem.* 60, 9251-9262. DOI: [10.1021/acs.jmedchem.7b01056](https://doi.org/10.1021/acs.jmedchem.7b01056)
- Phytogetic Polyphenols as Glycogen Phosphorylase Inhibitors: The Potential of Triterpenes and Flavonoids for Glycaemic Control in Type 2 Diabetes. Leonidas, D. D., Hayes, J. M., Kato, A., **Skamnaki, V. T.**, Chatzileontiadou, D. S., Kantsadi, A. L., Kyriakis, E., Chetter, B. A. & Stravodimos, G. A. (2017) *CurrMedChem* 24, 384-403. DOI: [10.2174/0929867324666161118122534](https://doi.org/10.2174/0929867324666161118122534)
- The ammonium sulfate inhibition of human angiogenin. Chatzileontiadou, D. S., Tsirkone, V. G., Dossi, K., Kassouni, A. G., Liggri, P. G., Kantsadi, A. L., Stravodimos, G. A., Balatsos, N. A., **Skamnaki, V. T.** & Leonidas, D. D. (2016) *FEBS Lett.* 590, 3005-18. DOI: [10.1002/1873-3468.12335](https://doi.org/10.1002/1873-3468.12335)
- An evaluation of indirubin analogues as phosphorylase kinase inhibitors. Begum, J., **Skamnaki, V. T.**, Moffatt, C., Bischler, N., Sarrou, J., Skaltsounis, A. L., Leonidas, D. D., Oikonomakos, N. G. & Hayes, J. M. (2015) *J Mol Graph Model.* 61, 231-42. DOI: [10.1016/j.jmgm.2015.07.010](https://doi.org/10.1016/j.jmgm.2015.07.010)
- Biochemical and biological assessment of the inhibitory potency of extracts from vinification byproducts of *Vitis vinifera* extracts against glycogen phosphorylase. Kantsadi, A. L., Apostolou, A., Theofanous, S., Stravodimos, G. A., Kyriakis, E., Gorgogietas, V. A., Chatzileontiadou, D. S., Pegiou, K., **Skamnaki, V. T.**, Stagos, D., Kouretas, D., Psarra, A. M., Haroutounian, S. A. & Leonidas, D. D. (2014) *Food Chem Toxicol.* 67, 35-43. DOI: [10.1016/j.fct.2014.01.055](https://doi.org/10.1016/j.fct.2014.01.055)
- Structural analysis of the *Rhizoctonia solani* agglutinin reveals a domain-swapping dimeric assembly. **Skamnaki, V. T.**, Peumans, W. J., Kantsadi, A. L., Cubeta, M. A., Plas, K., Pakala, S., Zographos, S. E., Smagghe, G., Nierman, W. C., Van Damme, E. J. & Leonidas, D. D. (2013) *FEBS J.* 280, 1750-63. DOI: [10.1111/febs.12190](https://doi.org/10.1111/febs.12190)

#### Conference proceedings (since 2018)

- Serafeim Alexopoulos, Aikaterini I. Argyriou, Panagiotis Mastorakis, Georgios A. Spyroulias, **Vasiliki Skamnaki**. The molecular recognition of carbohydrates by the human Starch Binding Domain Containing Protein 1 (STBD1). 71st HSBMB Annual Conference, Athens, 1-3 December 2023.
- Alexopoulos Serafeim, Grammatika Nektaria- Maria, Gardeli Chrysavgi, Leonidas Demetres, **Skamnaki Vasiliki**\* Identification of bioactive agents in extracts of the edible plant *Bellevalia dubia* using affinity crystallography. 11th Hellenic Crystallographic Association, Larisa 20-22 October 2023.
- Alexopoulos Serafeim, Papakostopoulou Souzana, Leonidas Demetres, **Skamnaki Vasiliki**\* The quercetin binding site (QBS) of the glycogen phosphorylase as a promising target for selective inhibitors. 11th Hellenic Crystallographic Association, Larisa 20-22 October 2023.
- Athanasios Toullos, Eirini Theodosiou, Serafeim Alexopoulos, George Stravodimos, Christina Drakou, **Vasiliki Skamnaki**. Heterologous expression of the C-terminal domain (CBM20) of the human Starch

binding domain-containing protein 1 (STBD1). 71st HSBMB Annual Conference, Athens, 26-28 November 2020

- Souzana Papakostopoulou, Serafeim Alexopoulos, Symeon Koulas, Demetres Leonidas, **Vasiliki Skamnaki**. The structural basis of inhibition of glycogen phosphorylase by epigallocatechin-3-gallate (EGCG). 10th Hellenic Crystallographic Association, Athens 15-17 October 2023.
- Christina E. Drakou, Chrysavgi Gardeli, Kalliopi Varela, Symeon Koulas, Anastasia Tsagkarakou, Demetres Leonidas, Vasiliki Skamnaki. In crystallo assessment of the bioactivity of anthocyanins from pomegranate juice (*Punica granatum* L Cv Ermioni) using affinity crystallography. 70th HSBMB Annual Conference (29/11-01/12 2019 Athens Greece)
- George A. Stravodimos, Efthymios Kyriakis, Theodora G. A. Solovou, **Vassiliki T. Skamnaki** and Demetres Leonidas. Affinity Crystallography constitutes a new rapid and reliable approach to discover the most bioactive molecule from a collection of compounds (e.g. natural extracts) for a pharmaceutical target. 70th HSBMB Annual Conference (29/11-01/12 2019 Athens Greece).
- Christina E. Drakou, Vasiliki Adamou-Androulaki, George A. Stravodimos, Anastasia L. Kantsadi, Demetres D. Leonidas, **Vassiliki T. Skamnaki**. Glycogen phosphorylase as a model for high-throughput crystallography (HTC) Greece 23 -25 November 2018.
- Eleni Politi, Theodora Solovou, George Stravodimos, George Papadopoulos, Demetres Leonidas & **Vasiliki Skamnaki**. Heterologous expression of the in silico predicted glucoamylase domain of regulatory a subunit (PHKA140400) of human muscle glycogen phosphorylase kinase. 9th Conference of Hellenic Crystallographic Association, Patras, Greece, 5-7/10/2018. Poster. Abstract book, p.95
- Anastasia Gkouskou, Joseph Hayes, George Stravodimos, Efthymios Kyriakis, Demetres Katounis, George Papadopoulos, Demetres Leonidas and **Vasiliki Skamnaki**. Assessment of a series of coumarin analogues for inhibitory potency against glycogen phosphorylase kinase. Insights for specificity. 9th Conference of Hellenic Crystallographic Association, Patras, Greece, 5-7/10/2018. Poster. Abstract book, p.92
- Symeon Koulas, Anastasia Tsagkarakou, Efthymios Kyriakis, Georgios Stravodimos, **Vasiliki Skamnaki** and Demetres Leonidas. Structured based design of glucose analogues to inhibit glycogen phosphorylase, a pharmaceutical target for diabetes type 2. 9th Conference of Hellenic Crystallographic Association, Patras, Greece, 5-7/10/2018. Poster. Abstract book, p.89
- Efthymios Kyriakis, Ben A. Chetter, George G.A Stravodimos, Theodora G.A Solovou, Olga S.E.Papaioannou, Daniel Barr, **Vassiliki T. Skamnaki**, Timothy J. Snape, Joseph, M.Hayes, Demetres D. Leonidas. Chemical and structural biology to target the inhibitor site of glycogen phosphorylase with chrysin analogues. 9th Conference of Hellenic Crystallographic Association, Patras, Greece, 5-7/10/2018. Abstract book, p.49.
- Efthymios Kyriakis, Theodora G.A. Solovou, Olga S. E. Papaioannou, Symeon M. Koulas Anastasia S. Tsagkarakou, George A. Stravodimos, **Vassiliki T. Skamnaki**, Demetres D. Leonidas. Structure-based inhibitor design studies targeting human liver Glycogen Phosphorylase. 69th Conference of the Hellenic Society of Biochemistry and Molecular Biology Larisa Greece 23 -25 November 2018
- Eleni Politi, Anastasia S. Tsagkarakou, Theodora G.A. Solovou, George Stravodimos, George Papadopoulos, Demetres D. Leonidas, **Vassiliki T. Skamnaki**. Rational mutagenesis to enhance solubility of N'-terminal domain (PHKA140400) of alpha regulatory subunit of PhK. 69th Conference of the Hellenic Society of Biochemistry and Molecular Biology Larisa Greece 23 -25 November 2018
- Kyriakis, E., Stravodimos, G.A., Solovou, T.G.A., Papaioannou, O., **Skamnaki, V.T.**, Leonidas, D.D. Chemical and structural biology to target the inhibitor site of Glycogen Phosphorylase with chrysin analogues 68th Lindau Nobel Laureate Meeting, 24-29 June 2018 Lindau, Germany.