

Affinity of zinc and copper ions for insulin monomers

Gavrilova, Julia; Tõugu, Vello; Palumaa, Peep *Metallomics* 2014 / p. 1296-1300 : ill <https://doi.org/10.1039/c4mt00059e> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Amyloid beta 1-42 oligomerization in vitro and characterization with SDS-PAGE, MALDI and ESI MS

Friedemann, Merlin; Tõugu, Vello; Kirsipuu, Tiina; Palumaa, Peep *FEBS journal* 2013 / p. 140-141

Application of Differentiated SH-SY5Y Cells for Toxicological Studies of Alzheimer's Amyloid Beta Peptide = Diferentseeritud SH-SY5Y rakkude kasutamine Alzheimeri amüloid beeta peptiidi toksilisuse uurimiseks

Krištal, Jekaterina 2020 <https://digikogu.taltech.ee/et/Item/8aef400a-e1ff-4803-a0da-fc2d97c8d451>

Binding of zinc(II) and copper(II) to the full-length Alzheimer's amyloid-[beeta] peptide

Tõugu, Vello; Karafin, Ann; Palumaa, Peep *Journal of neurochemistry* 2008 / p. 1249-1259 : ill <https://pubmed.ncbi.nlm.nih.gov/18289347/>

Characterization of Uranyl (UO₂²⁺) ion binding to Amyloid Beta (A β) peptides : effects on A β structure and aggregation

Berntsson, Elina; Vosough, Faraz; Noormägi, Andra; Padari, Kärt; Asplund, Fanny; Gielnik, Maciej; Paul, Suman; Jarvet, Jüri; Tõugu, Vello; Palumaa, Peep *ACS chemical neuroscience* 2023 / p. 2618-2633 : ill <https://doi.org/10.1021/acschemneuro.3c00130> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Chemical modification of met and his residues of amyloid β peptide. Influence of copper ions and effect on fibrillization = Metioniini ja histidiini jääkide keemiline modifitseerimine amüloid- β peptiidis. Vaskioonide mõju ja efekt fibrillisatsioonile

Sardis, Merlin 2021 <https://doi.org/10.23658/taltech.19/2021> https://www.ester.ee/record=b5416905*est <https://digikogu.taltech.ee/et/Item/acced69c-c690-4cb5-a972-48e1c4ae5c66>

Coordination of zinc ions to the key proteins of neurodegenerative diseases: A[beeta], APP, [alfa]-synuclein and PrP

Tõugu, Vello; Palumaa, Peep *Coordination chemistry reviews* 2012 / p. 2219-2224 : ill https://www.researchgate.net/publication/236131300_Coordination_of_zinc_ions_to_the_key_proteins_of_neurodegenerative_diseases_Ab_APP_a-synuclein_and_PrP

Copper(I)-binding properties of de-coppering drugs for the treatment of Wilson disease. α -Lipoic acid as a potential anti-copper agent

Smirnova, Julia; Kabin, Ekaterina; Järving, Ivar; Bragina, Olga; Tõugu, Vello; Plitz, Thomas; Palumaa, Peep *Scientific reports* 2018 / art. 1463, 9 p. : ill <https://doi.org/10.1038/s41598-018-19873-2> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Copper(I)-binding properties of de-coppering drugs for treatment of Wilson disease

Smirnova, Julia; Kabin, Ekaterina; Järving, Ivar; Tõugu, Vello; Plitz, T.; Palumaa, Peep *The FEBS journal* 2017 / p. 337 <https://doi.org/10.1111/febs.14174>

Copper(II) ions and the Alzheimer's amyloid- β peptide : affinity and stoichiometry of binding

Tõugu, Vello; Friedemann, Merlin; Tiiman, Ann; Palumaa, Peep *AIP conference proceedings* 2014 / p. 109-111

Copper(II)-binding equilibria in human blood

Kirsipuu, Tiina; Zadorožnaja, Anna; Smirnova, Julia; Friedemann, Merlin; Plitz, Thomas; Tõugu, Vello; Palumaa, Peep *Scientific reports* 2020 / art. 5686, 10 p. : ill <https://doi.org/10.1038/s41598-020-62560-4> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Cu(II) partially protects three histidine residues and the N-terminus of amyloid- β peptide from diethyl pyrocarbonate (DEPC) modification

Friedemann, Merlin; Tõugu, Vello; Palumaa, Peep *FEBS Open Bio* 2020 / p. 1072-1081 <https://doi.org/10.1002/2211-5463.12857> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Direct competition of ATCUN peptides with human serum albumin for copper(II) ions determined by LC-ICP MS

Noormägi, Andra; Golubeva, Tatjana; Berntsson, Elina; Wärmländer, Sebastian K.T.S.; Tõugu, Vello; Palumaa, Peep *ACS omega* 2023 / p. 33912-33919 <https://doi.org/10.1021/acsomega.3c04649> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Effect of methionine-35 oxidation on the aggregation of amyloid- β peptide

Friedemann, Merlin; Helk, Eneken; Tiiman, Ann; Zovo, Kairit; Palumaa, Peep; Tõugu, Vello *Biochemistry and biophysics reports* 2015 / p. 94-99 : ill <http://dx.doi.org/10.1016/j.bbrep.2015.07.017>

Effect of Zn(II) and Cu(II) ions on aggregation and fibrillation of amyloid-beta(1-42) peptide

Palumaa, Peep; Karafin, Ann; Zovo, Kairit; Chung, Roger S.; Howells, Claire; West, Adrian K.; Tõugu, Vello *Sinapsa Neuroscience Conference '09* : Ljubljana, 26-29 September 2009 : abstract book 2009 / p. 34

Effects of Zn²⁺ ions and environmental conditions on the fibrillization of insulin = Zn²⁺ ionide ja keskkonnatingimuste mõju insuliini fibrillatsioonile

Noormägi, Andra 2018 <https://digi.lib.ttu.ee/i/?10378> https://www.ester.ee/record=b5148492*est

Evaluation of Zn²⁺- and Cu²⁺-binding affinities of native Cu,Zn-SOD1 and its G93A mutant by LC-ICP MS

Smirnova, Julia; Gavrilova, Julia; Noormägi, Andra; Valmsen, Karin; Pupart, Hegne; Luo, Jinghui; Tõugu, Vello; Palumaa, Peep *Molecules* 2022 / art. 3160 <https://doi.org/10.3390/molecules27103160> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Faculty of Science : [Tallinn University of Technology]

2012 https://www.ester.ee/record=b2890162*est

Fibrillization of the mixtures of amyloid beta 1-40 and 1-42

Krištal, Jekaterina; Friedemann, Merlin; Tõugu, Vello; Palumaa, Peep *Neurodegenerative diseases* 2015 / p. 364 <http://dx.doi.org/10.1159/000381736>

In situ fibrillizing amyloid-beta 1-42 induces neurite degeneration and apoptosis of differentiated SH-SY5Y cells

Krishtal, Jekaterina; Bragina, Olga; Metsla, Kristel; Palumaa, Peep; Tõugu, Vello *PLoS ONE* 2017 / art. e0186636, 16 p. : ill <https://doi.org/10.1371/journal.pone.0186636> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

In vitro fibrillization of Alzheimer's amyloid-β peptide (1-42)

Tiiman, Ann; Krištal, Jekaterina; Palumaa, Peep; Tõugu, Vello *AIP advances* 2015 / p. 092401-1 - 092401-12 : ill <https://doi.org/10.1063/1.4921071> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Insulin fibrillization at acidic and physiological pH values is controlled by different molecular mechanisms

Noormägi, Andra; Valmsen, Karin; Tõugu, Vello; Palumaa, Peep *The protein journal* 2015 / p. 398-403 : ill <https://doi.org/10.1007/s10930-015-9634-x> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Interactions of Alzheimer's amyloid-β peptides with Zn(II) and Cu(II) ions = Alzheimeri amüloid-β peptiidide interaktsioonid Zn(II) ja Cu(II) ionidega

Tiiman, Ann 2012 https://www.ester.ee/record=b2866174*est

Interactions of zinc(II) and copper(II) to the full-length Alzheimer's amyloid-B peptide in vitro

Karafin, Ann; Palumaa, Peep; Tõugu, Vello *FEBS journal* 2008 / Suppl. 1, p. 222

Interactions of Zn(II) and Cu(II) ions with Alzheimer's amyloid-beta peptide. Metal ion binding, contribution to fibrillization and toxicity

Tõugu, Vello; Tiiman, Ann; Palumaa, Peep *Metallomics* 2011 / p. 250-261 : ill <https://academic.oup.com/metallomics/article/3/3/250/6016214>

Interference of low-molecular substances with the thioflavin-T fluorescence assay of amyloid fibrils

Noormägi, Andra; Primar, Kateryna; Tõugu, Vello; Palumaa, Peep *Journal of peptide science* 2012 / p. 59-64 : ill <https://pubmed.ncbi.nlm.nih.gov/22083646/>

Kemofobia - ülearune paanika või põhjendatud hirm

Kinnunen, Katariina *Studioosus* 2021 / lk. 34-35 : fot https://www.ester.ee/record=b1558644*est

3. osa. Ensüümatalüüsi põhimõisted ja kineetika

Biokeemia : lühikursus : õpik kõrgkoolidele 2016 / lk. 67-127 : ill

Label-free high-throughput screening assay for inhibitors of Alzheimer's amyloid-[beta] peptide aggregation based on MALDI MS

Zovo, Kairit; Helk, Eneken; Karafin, Ann; Tõugu, Vello; Palumaa, Peep *Analytical chemistry* 2010 / p. 8558-8565 https://www.researchgate.net/publication/46392320_Label-Free_High-Throughput_Screening_Assay_for_Inhibitors_of_Alzheimer's_Amyloid-beta_Peptide_Aggregation_Based_on_MALDI_MS

Mercury ion binding to apolipoprotein E variants ApoE2, ApoE3, and ApoE4 : similar binding affinities but different structure induction effects

Berntsson, Elina; Sardis, Merlin; Noormägi, Andra; Jarvet, Jüri; Roos, Per M.; Tõugu, Vello; Gräslund, Astrid; Wärmländer, Sebastian K.T.S. *ACS omega* 2022 / p. 28924-28931 <https://doi.org/10.1021/acsomega.2c02254> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Metallothionein 2A affects the cell respiration by suppressing the expression of mitochondrial protein cytochrome c oxidase subunit II

Bragina, Olga; Gurjanova, Karina; Krištal, Jekaterina; Kulp, Maria; Karro, Niina; Tõugu, Vello; Palumaa, Peep *Journal of bioenergetics and biomembranes* 2015 / p. 209-216 : ill <https://doi.org/10.1007/s10863-015-9609-9> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Monitoring of A-beta fibrillization using an improved fluorimetric method

Karafin, Ann; Palumaa, Peep; Tõugu, Vello New Trends in Alzheimer and Parkinson Disorders : ADPD 2009 2009 / p. 255-259
<https://www.etis.ee/Portal/Publications/Display/979eb21d-601b-4aa1-b941-121eff184407>

Monitoring of amyloid-beta fibrillization using an improved fluorimetric method [Electronic resource]

Karafin, Ann; Palumaa, Peep; Tõugu, Vello Neurodegenerative diseases 2009 / S1, Alzheimer's and Parkinson's Diseases : Advances, Concepts and New Challenges, p. 799 [CD-ROM] <https://www.etis.ee/Portal/Publications/Display/979eb21d-601b-4aa1-b941-121eff184407>

Mürgistus koliinesteraasi inhibiitoriga - mida see tähendab?

Lauri, Vahur err.ee 2020 / fot [Mürgistus koliinesteraasi inhibiitoriga - mida see tähendab?](#)

Ohtlik põhjus, miks õhtuti pea valutab

postimees.ee 2024 [Ohtlik põhjus, miks õhtuti pea valutab](#)

Oxidation of Methionine-35 in Alzheimer's amyloid-beta peptide and the aggregation of the oxidized peptide

Friedemann, Merlin; Helk, Eneken; Tiiman, Ann; Zovo, Kairit; Palumaa, Peep; Tõugu, Vello SpringerPlus 2015 / p. 20, P13
<http://dx.doi.org/10.1186/2193-1801-4-S1-P13>

Professor: enamikul inimestest jääb lubatud kasu kollageenist saamata

novaator.err.ee 2025 <https://novaator.err.ee/1609610768/professor-enamikul-inimestest-jaab-lubatud-kasu-kollageenist-saamata>

Redox and metal ion binding properties of human insulin-like growth factor 1 determined by electrospray ionization mass spectrometry

Smirnova, Julia; Muhhina, Jekaterina; Tõugu, Vello; Palumaa, Peep Biochemistry 2012 / p. 5851-5859 : ill
<https://pubs.acs.org/doi/10.1021/bi300494s>

Redox properties of Cys2His2 and Cys4 zinc fingers determined by electrospray ionization mass spectrometry

Smirnova, Julia; Kabin, Ekaterina; Tõugu, Vello; Palumaa, Peep FEBS Open Bio 2018 / p. 923 - 931 <https://doi.org/10.1002/2211-5463.12422> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Role of metal ions in amyloidogenic properties of insulin and superoxide dismutase = Metallioonide roll insuliini ja superoksiidi dismutaasi amüloidoogeensetes omadustes

Gavrilova, Julia 2022 <https://doi.org/10.23658/taltech.44/2022> <https://digikogu.taltech.ee/et/Item/693de590-2d9f-43d6-989e-ebac0544151d>
https://www.ester.ee/record=b5511706*est

Surface carboxylation or PEGylation decreases CuO nanoparticles' cytotoxicity to human cells in vitro without compromising their antibacterial properties

Kubo, Anna-Liisa; **Vasiliev, Grigory**; Vija, Heiki; Krištal, Jekaterina; **Tõugu, Vello**; Visnapuu, Meeri; Kisand, Vambola; **Kahru, Anne**; Bondarenko, Olesja Archives of toxicology 2020 / p. 1561-1573 : ill <https://doi.org/10.1007/s00204-020-02720-7>

Zn(II) and Cu(II)-induced non-fibrillar aggregates of amyloid-[beta](1-42) peptide are transformed to amyloid fibrils both spontaneously and under the influence of metal chelators

Tõugu, Vello; Karafin, Ann; Zovo, Kairit; Chung, Roger S.; Howells, Claire; West, Adrian; **Palumaa, Peep** Journal of neurochemistry 2009 / 6, p. 1784-1795 : ill <https://pubmed.ncbi.nlm.nih.gov/19619132/>

Zn(II) ions co-secreted with insulin suppress inherent amyloidogenic properties of monomeric insulin

Noormägi, Andra; Gavrilova, Julia; Smirnova, Julia; Tõugu, Vello; Palumaa, Peep Biochemical journal 2010 / p. 511-518
<https://pubmed.ncbi.nlm.nih.gov/20632994/>

Zn(II) ions inhibit fibrillization of monomeric insulin

Noormägi, Andra; Gavrilova, Julia; Smirnova, Julia; Tõugu, Vello; Palumaa, Peep FEBS journal 2010 / Suppl. 1, p. 256

The missing link in the amyloid cascade of Alzheimer's disease - metal ions

Tiiman, Ann; Palumaa, Peep; Tõugu, Vello Neurochemistry international 2013 / p. 367-378 : ill
<https://doi.org/10.1016/j.neuint.2013.01.023> <https://www.sciencedirect.com/science/article/pii/S0197018613000326> [Journal metrics at Scopus](#)
[Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

The modelling and kinetic investigation of the lipase-catalysed acetylation of stereoisomeric prostaglandins

Vallikivi, Imre; Fransson, Linda; Hult, Karl; Järving, Ivar; Pehk, Tõnis; Samel, Nigulas; Tõugu, Vello; Villo, Ly; Parve, Omar Journal of molecular catalysis B : enzymatic 2005 / p. 62-69 : ill

Toxicity of amyloid beta 1-40 and 1-42 on SH-SY5Y cell line

Krištal, Jekaterina; Bragina, Olga; Metsla, Kristel; Palumaa, Peep; Tõugu, Vello SpringerPlus 2015 / p. 21-22, P19

Toxicity of amyloid- β peptides varies depending on differentiation route of SH-SY5Y cells

Krištal, Jekaterina; Metsla, Kristel; **Bragina, Olga**; **Tõugu, Vello**; **Palumaa, Peep** Journal of Alzheimer's disease 2019 / p. 879–887 <https://doi.org/10.3233/JAD-190705> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Vaskioonide roll Alzheimeri amüloidse beeta peptiidi [p. o. peptiidi] agregatsioonil ja toksilisusel

Tõugu, Vello; **Tiiman, Ann**; **Palumaa, Peep** XXXII Eesti Keemiapäevad : teaduskonverentsi teesid 2011 / lk. 102

Üks küsimus : milline on teie jaoks ideaalne ülikool?

Mente et Manu 2020 / lk. 24-25 , 34-35, 44-45 : portr https://www.ester.ee/record=b1242496*est

α -Lipoic acid has the potential to normalize copper metabolism, which is dysregulated in Alzheimer's disease

Metsla, Kristel; **Kirss, Sigrid**; **Laks, Katrina**; **Sildnik, Gertrud**; **Palgi, Mari**; Palumaa, Teele; **Tõugu, Vello**; **Palumaa, Peep** Journal of Alzheimer's Disease 2022 / p. 715-728 <https://doi.org/10.3233/JAD-215026> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

α -Lipoic acid: a potential regulator of copper metabolism in Alzheimer's disease

Kirss, Sigrid; Reinapu, Anette; **Kabin, Ekaterina**; **Smirnova, Julia**; **Tõugu, Vello**; **Palumaa, Peep** Frontiers in Molecular Biosciences 2024 / art. 1451536 <https://doi.org/10.3389/fmolb.2024.1451536> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Электростатический солевой эффект во взаимодействиях ацетилхолинэстеразы и трипсина с катионными лигандами : автореферат диссертации ... кандидата химических наук (02.00.03)

Tõugu, Vello 1991 https://www.ester.ee/record=b1190402*est