

#### **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/>

#### **1,1'-bis(anilino)-4,4'-bis(naphtalene)-8,8'-disulfonate acts as an inhibitor of lipoprotein lipase and competes for binding with apolipoprotein CII**

Lõokene, Aivar; Zhang, L.; Tõugu, Vello; Olivecrona, G. *Journal of biological chemistry* 2003 / p. 37183-37194 <https://doi.org/10.1074/jbc.m303894200>

#### **Characterization of Uranyl (UO<sub>2</sub><sup>2+</sup>) ion binding to Amyloid Beta (A $\beta$ ) peptides : effects on A $\beta$ 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/acscchemneuro.3c00130> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

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

Sardis, Merlin 2021 <https://doi.org/10.23658/taltech.19/2021> [https://www.eester.ee/record=b5416905\\*est](https://www.eester.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](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. $\alpha$ -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- $\beta$ 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- $\beta$ 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; Warmländer, 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 agitation on the peptide fibrillization: Alzheimer's amyloid- $\beta$ peptide 1-42 but not amylin and insulin fibrils can grow under quiescent conditions**

Tiiman, Ann; Noormägi, Andra; Friedemann, Merlin; Krištal, Jekaterina; Palumaa, Peep; Tõugu, Vello *Journal of peptide*

science 2013 / p. 386-391 : ill <https://doi.org/10.1002/psc.2513> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

#### **Effect of methionine-35 oxidation on the aggregation of amyloid- $\beta$ 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 Zn<sup>2+</sup> ions and environmental conditions on the fibrillization of insulin = Zn<sup>2+</sup> ionide ja keskkonnatingimuste mõju insuliini fibrillisatsioonile**

**Noormägi, Andra** 2018 <https://digi.lib.ttu.ee/ii/?10378> [https://www.ester.ee/record=b5148492\\*est](https://www.ester.ee/record=b5148492*est)

#### **Ensümaatilise atsüüülekande reaktsiooni kasutamine orgaaniliste ühendite sünteesil**

Tõugu, Vello XVI Eesti keemiapäevad : teaduskonverentsi ettekannete referaadid = 16th Estonian chemistry days : abstracts of scientific conference 1995 / lk. 145-146

#### **Evaluation of Zn<sup>2+</sup>- and Cu<sup>2+</sup>-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](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- $\beta$ peptide (1-42)**

**Tiiman, Ann; Krištal, Jekaterina; Palumaa, Peep; Tõugu, Vello** AIP advances 2015 / p. 092401-1 - 092401-12 : ill <http://dx.doi.org/10.1063/1.4921071>

#### **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 <http://dx.doi.org/10.1007/s10930-015-9634-x>

#### **Interactions of Alzheimer's amyloid- $\beta$ peptides with Zn(II) and Cu(II) ions = Alzheimeri amüloid- $\beta$ peptiidide interaktsioonid Zn(II) ja Cu(II) ionidega**

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

#### **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](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-[beeta] 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](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)

#### **Lipase action on some non-triglyceride substrates**

**Vallikivi, Imre; Lille, Ülo; Lõokene, Aivar; Metsala, Andrus; Sikk, Peeter; Tõugu, Vello; Vija, Heiki; Villo, Ly; Parve, Omar** Journal of molecular catalysis B : enzymatic 2003 / 5/6, p. 279-298 : ill <https://www.sciencedirect.com/science/article/abs/pii/S1381117703000432>

#### **Lipase-catalysed enantioselective hydrolysis : interpretation of the kinetic results in terms of frontier orbital localisation**

Parve, Omar; **Vallikivi, Imre**; Metsala, Andrus; **Lille, Ülo**; Tõugu, Vello; Sikk, Peeter; **Käämbre, Tuuli**; Vija, Heiki; **Pehk, Tõnis** Tetrahedron 1997 / 13, p. 4889-4900

#### **Lipase-catalysed enantioselective hydrolysis of bicyclo[3.2.0]heptanol esters in supercritical carbon dioxide**

Parve, Omar; **Vallikivi, Imre**; Lahe, Lilja; Metsala, Andrus; **Lille, Ülo**; Tõugu, Vello; Vija, Heiki; **Pehk, Tõnis** Bioorganic & medicinal chemistry letters 1997 / 7, p. 811-816

#### **"Lipolase" allub sekundaarsete alkoholide enantioeelistuse üldisele reeglile nii vesi kui ka superkriitilise SKCO<sub>2</sub> keskkonnas = "Lipolase" obeys the general enantioference rule of secondary alcohols in water and supercritical (SC)CO<sub>2</sub> media as well**

**Lille, Ülo**; Metsala, Andrus; Parve, Omar; Tõugu, Vello; Vija, Heiki XVII Eesti keemiapäevad : teaduskonverentsi ettekannete referaadid = 17th Estonian Chemistry Days : abstracts of scientific conference 1996 / lk. 101-102

#### **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 <http://dx.doi.org/10.1007/s10863-015-9609-9>

#### **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?](#)

#### **NMR monitoring of lipase-catalyzed reactions of prostaglandins : preliminary estimation of reaction velocities**

**Vallikivi, Imre; Järving, Ivar; Pehk, Tõnis; Samel, Nigulas**; Tõugu, Vello; **Parve, Omar** Journal of molecular catalysis B : enzymatic 2004 / p. 15-19 : ill

#### **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>

#### **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 amüloidogeensetes 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](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; Krištál, 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

**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**

**Krištál, Jekaterina**; **Bragina, Olga**; **Metsla, Kristel**; **Palumaa, Peep**; **Tõugu, Vello** SpringerPlus 2015 / p. 21-22, P19  
<http://dx.doi.org/10.1186/2193-1801-4-S1-P19>

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

**Krištál, 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 peptiide [p. o. peptiid] 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](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>

**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](https://www.ester.ee/record=b1190402*est)