

List of publications, R Melki's team – dec 2022

Liste des publications, équipe Melki – dec 2022

2022

[Dissecting aggregation and seeding dynamics of \$\alpha\$ -Syn polymorphs using the phasor approach to FLIM.](#)

Tittelmeier J, Druffel-Augustin S, **Alik A**, **Melki R**, Nussbaum-Krammer C. Commun Biol. 2022 Dec 8;5(1):1345. doi: 10.1038/s42003-022-04289-6. PMID: 36477485

[Human pericytes degrade diverse \$\alpha\$ -synuclein aggregates.](#)

Dieriks BV, Hight B, **Alik A**, **Bellande T**, Stevenson TJ, Low V, Park TI, Correia J, Schweder P, Faull RLM, **Melki R**, Curtis MA, Dragunow M. PLoS One. 2022 Nov 18;17(11):e0277658. doi: 10.1371/journal.pone.0277658. PMID: 36399706

[Mesoscale connections and gene expression empower whole-brain modeling of \$\alpha\$ -synuclein spread, aggregation, and decay dynamics.](#)

Dadgar-Kiani E, Bieri G, **Melki R**, Gitler AD, Lee JH. Cell Rep. 2022 Nov 8;41(6):111631. doi: 10.1016/j.celrep.2022.111631. PMID: 36351406

[Comparative Proteomic Analysis of Transcriptional and Regulatory Proteins Abundances in *S. lividans* and *S. coelicolor* Suggests a Link between Various Stresses and Antibiotic Production.](#)

C Lejeune, D Cornu, L Sago, **V Redeker**, M-J Virolle. Int J Mol Sci. 2022 Nov 26;23(23):14792. doi: 10.3390/ijms232314792. PMID: 36499130

[Propagation of Distinct \$\alpha\$ -Synuclein Strains Within Human Reconstructed Neuronal Network and Associated Neuronal Dysfunctions.](#)

Gribaudo S, Bousset L, Courte J, **Melki R**, Peyrin JM, Perrier AL. Methods Mol Biol. 2023;2551:357-378. doi: 10.1007/978-1-0716-2597-2_24. PMID: 36310215

[\$\alpha\$ -Synuclein Fibril, Ribbon and Fibril-91 Amyloid Polymorphs Generation for Structural Studies.](#)

Bousset L, **Alik A**, Arteni A, Böckmann A, Meier BH, **Melki R**. Methods Mol Biol. 2023;2551:345-355. doi: 10.1007/978-1-0716-2597-2_23. PMID: 36310214

[Modeling native and seeded Synuclein aggregation and related cellular dysfunctions in dopaminergic neurons derived by a new set of isogenic iPSC lines with SNCA multiplications.](#)

Iannielli A, Luoni M, Giannelli SG, Ferese R, Ordazzo G, Fossati M, Raimondi A, Opazo F, Corti O, Prehn JHM, Gambardella S, **Melki R**, Broccoli V. Cell Death Dis. 2022 Oct 19;13(10):881. doi: 10.1038/s41419-022-05330-6. PMID: 36261424

[Pericytes take up and degrade \$\alpha\$ -synuclein but succumb to apoptosis under cellular stress.](#)

Stevenson TJ, Johnson RH, **Savistchenko J**, Rustenhoven J, Woolf Z, Smyth LCD, Murray HC, Faull RLM, Correia J, Schweder P, Heppner P, Turner C, **Melki R**, Dieriks BV, Curtis MA, Dragunow M. Sci Rep. 2022 Oct 15;12(1):17314. doi: 10.1038/s41598-022-20261-0. PMID: 36243723

[Disease Mechanisms of Multiple System Atrophy: What a Parallel Between the Form of Pasta and the Alpha-Synuclein Assemblies Involved in MSA and PD Tells Us.](#)

Melki R. Cerebellum. 2022 Jun 3. doi: 10.1007/s12311-022-01417-0. PMID: 35657577

[Modelling \$\alpha\$ -Synuclein Aggregation and Neurodegeneration with Fibril Seeds in Primary Cultures of Mouse Dopaminergic Neurons.](#)

Tourville A, Akbar D, Corti O, Prehn JHM, **Melki R**, Hunot S, Michel PP. *Cells*. 2022 May 13;11(10):1640. doi: 10.3390/cells11101640. PMID: 35626675

[C9ORF72-derived poly-GA DPRs undergo endocytic uptake in iAstrocytes and spread to motor neurons.](#)

Marchi PM, Marrone L, **Brasseur L**, **Coens A**, Webster CP, **Bousset L**, Destro M, Smith EF, Walther CG, Alfred V, Marrocella R, Graves EJ, Robinson D, Shaw AC, Wan LM, Grierson AJ, Ebbens SJ, De Vos KJ, Hautbergue GM, Ferraiuolo L, **Melki R**, Azzouz M. *Life Sci Alliance*. 2022 May 13;5(9):e202101276. doi: 10.26508/lsa.202101276. PMID: 35568435

[Impact of \$\alpha\$ -Synuclein Fibrillar Strains and \$\beta\$ -Amyloid Assemblies on Mouse Cortical Neurons Endo-Lysosomal Logistics.](#)

Chou QL, **Alik A**, Marquier F, **Melki R**, Treussart F, Simonneau M. *eNeuro*. 2022 May 12;9(3):ENEURO.0227-21.2022. doi: 10.1523/ENEURO.0227-21.2022. PMID: 35470226

[Amyloid polymorphs and pathological diversities.](#)

Melki R. *Neurochem Int*. 2022 Apr 5;156:105335. doi: 10.1016/j.neuint.2022.105335. PMID: 35395342

[Reactive astrocytes promote proteostasis in Huntington's disease through the JAK2-STAT3 pathway.](#)

Abjean L, Ben Haim L, Riquelme-Perez M, Gipchtein P, Derbois C, Palomares MA, Petit F, Hérard AS, Gaillard MC, Guillermier M, Gaudin-Guérif M, Aurégan G, Sagar N, Héry C, Dufour N, Robil N, Kabani M, **Melki R**, De la Grange P, Bemelmans AP, Bonvento G, Deleuze JF, Hantraye P, Flament J, Bonnet E, Brohard S, Olaso R, Brouillet E, Carrillo-de Sauvage MA, Escartin C. *Brain*. 2022 Mar 17:awac068. doi: 10.1093/brain/awac068. PMID: 35298632

[A Proteomic Analysis Indicates That Oxidative Stress Is the Common Feature Triggering Antibiotic Production in *Streptomyces coelicolor* and in the *pptA* Mutant of *Streptomyces lividans*.](#)

Lejeune C, Sago L, Cornu D, Redeker V, Virolle MJ. *Front Microbiol*. 2022 Mar 22;12:813993. doi: 10.3389/fmicb.2021.813993. eCollection 2021. PMID: 35392450

[Sequential or Simultaneous Injection of Preformed Fibrils and AAV Overexpression of Alpha-Synuclein Are Equipotent in Producing Relevant Pathology and Behavioral Deficits.](#)

Negrini M, Tomasello G, Davidsson M, **Fenyi A**, Adant C, Hauser S, Espa E, Gubinelli F, Manfredsson FP, **Melki R**, Heuer A. *J Parkinsons Dis*. 2022 Feb 23. doi: 10.3233/JPD-212555. PMID: 35213388

[Host oligodendroglipathy and \$\alpha\$ -synuclein strains dictate disease severity in multiple system atrophy.](#)

Torre-Muruzabal T, Van der Perren A, **Coens A**, Gelders G, Barber Janer A, Camacho-Garcia S, Klingstedt T, Nilsson P, Stefanova N, **Melki R**, Baekelandt V, Peelaerts W. *Brain*. 2022 Feb 15:awac061. doi: 10.1093/brain/awac061. PMID: 35170728

[Endogenous Levels of Alpha-Synuclein Modulate Seeding and Aggregation in Cultured Cells.](#)

Vasili E, Dominguez-Meijide A, Flores-León M, Al-Azzani M, Kanellidi A, **Melki R**, Stefanis L, Outeiro TF. *Mol Neurobiol*. 2022 Feb;59(2):1273-1284. doi: 10.1007/s12035-021-02713-2. Epub 2022 Jan 4. PMID: 34984585

2021

[Establishment of a human induced pluripotent stem cell neuronal model for identification of modulators of A53T \$\alpha\$ -synuclein levels and aggregation.](#)

Vajhøj C, Schmid B, **Alik A, Melki R**, Fog K, Holst B, Stummann TC. PLoS One. 2021 Dec 21;16(12):e0261536. doi: 10.1371/journal.pone.0261536. eCollection 2021. PMID: 34932569

[Structural mapping techniques distinguish the surfaces of fibrillar 1N3R and 1N4R human tau.](#)

Caroux E, Redeker V, Madiona K, Melki R. J Biol Chem. 2021 Nov;297(5):101252. doi: 10.1016/j.jbc.2021.101252. Epub 2021 Sep 28. PMID: 34592311

[T Cells Limit Accumulation of Aggregate Pathology Following Intrastratial Injection of \$\alpha\$ -Synuclein Fibrils.](#)

George S, Tyson T, **Rey NL**, Sheridan R, Peelaerts W, Becker K, Schulz E, Meyerdirk L, Burmeister AR, von Linstow CU, Steiner JA, Galvis MLE, Ma J, Pospisilik JA, Labrie V, Brundin L, Brundin P. J Parkinsons Dis. 2021;11(2):585-603. doi: 10.3233/JPD-202351. PMID: 33579871

[LGALS3 \(galectin 3\) mediates an unconventional secretion of SNCA/ \$\alpha\$ -synuclein in response to lysosomal membrane damage by the autophagic-lysosomal pathway in human midbrain dopamine neurons.](#)

Burbidge K, Rademacher DJ, Mattick J, Zack S, Grillini A, **Bousset L**, Kwon O, Kubicki K, Simon A, **Melki R**, Campbell EM. Autophagy. 2021 Oct 6:1-29. doi: 10.1080/15548627.2021.1967615. PMID: 34612142

[Microglia jointly degrade fibrillar alpha-synuclein cargo by distribution through tunneling nanotubes.](#)

Scheiblich H, Dansokho C, Mercan D, Schmidt SV, **Bousset L**, Wischhof L, Eikens F, Odanic A, Spitzer J, Griep A, Schwartz S, Bano D, Latz E, **Melki R**, Heneka MT. Cell. 2021 Sep 30;184(20):5089-5106.e21. doi: 10.1016/j.cell.2021.09.007. Epub 2021 Sep 22. PMID: 34555357

[Microglial NLRP3 Inflammasome Activation upon TLR2 and TLR5 Ligation by Distinct \$\alpha\$ -Synuclein Assemblies.](#)

Scheiblich H, **Bousset L**, Schwartz S, Griep A, Latz E, **Melki R**, Heneka MT. J Immunol. 2021 Oct 15;207(8):2143-2154. doi: 10.4049/jimmunol.2100035. Epub 2021 Sep 10. PMID: 34507948

[Microglial inclusions and neurofilament light chain release follow neuronal \$\alpha\$ -synuclein lesions in long-term brain slice cultures.](#)

Barth M, Bacioglu M, Schwarz N, Novotny R, Brandes J, Welzer M, Mazzitelli S, Häslér LM, Schweighauser M, Wuttke TV, Kronenberg-Versteeg D, Fog K, Ambjørn M, **Alik A, Melki R**, Kahle PJ, Shimshek DR, Koch H, Jucker M, Tanriöver G. Mol Neurodegener. 2021 Aug 11;16(1):54. doi: 10.1186/s13024-021-00471-2. PMID: 34380535

[Alpha-synuclein research: defining strategic moves in the battle against Parkinson's disease.](#)

Oliveira LMA, Gasser T, Edwards R, Zweckstetter M, **Melki R**, Stefanis L, Lashuel HA, Sulzer D, Vekrellis K, Halliday GM, Tomlinson JJ, Schlossmacher M, Jensen PH, Schulze-Hentrich J, Riess O, Hirst WD, El-Agnaf O, Mollenhauer B, Lansbury P, Outeiro TF. NPJ Parkinsons Dis. 2021 Jul 26;7(1):65. doi: 10.1038/s41531-021-00203-9. PMID: 34312398. Review.

[LAG3 is not expressed in human and murine neurons and does not modulate \$\alpha\$ -synucleinopathies.](#)

Emmenegger M, De Cecco E, Hruska-Plochan M, Eninger T, Schneider MM, Barth M, Tantardini E, de Rossi P, Bacioglu M, Langston RG, Kaganovich A, Bengoa-Vergniory N, Gonzalez-Guerra A, Avar M, Heinzer D, Reimann R, Häslér LM, Herling TW, Matharu NS, Landeck N, Luk K, **Melki R**, Kahle PJ, Hornemann S, Knowles TPJ, Cookson MR, Polymenidou M, Jucker M, Aguzzi A. EMBO Mol Med. 2021 Sep 7;13(9):e14745. doi: 10.15252/emmm.202114745. Epub 2021 Jul 26. PMID: 34309222

[Phenotypic manifestation of \$\alpha\$ -synuclein strains derived from Parkinson's disease and multiple system atrophy in human dopaminergic neurons.](#)

Tanudjojo B, Shaikh SS, **Fenyi A, Bousset L**, Agarwal D, Marsh J, Zois C, Heman-Ackah S, Fischer R, Sims D, **Melki R**, Tofaris GK. Nat Commun. 2021 Jun 21;12(1):3817. doi: 10.1038/s41467-021-23682-z. PMID: 34155194

[The differential solvent exposure of N-terminal residues provides "fingerprints" of alpha-synuclein fibrillar polymorphs.](#)

Landureau M, Redeker V, Bellande T, Eyquem S, Melki R.J Biol Chem. 2021 Jan-Jun;296:100737. doi: 10.1016/j.jbc.2021.100737. Epub 2021 Apr 30.PMID: 33933456

[TNF- \$\alpha\$ and \$\alpha\$ -synuclein fibrils differently regulate human astrocyte immune reactivity and impair mitochondrial respiration.](#)

Russ K, Teku G, Bousset L, Redeker V, Piel S, Savchenko E, Pomeschchik Y, Savistchenko J, Stummann TC, Azevedo C, Collin A, Goldwurm S, Fog K, Elmer E, Vihinen M, Melki R, Roybon L.Cell Rep. 2021 Mar 23;34(12):108895. doi: 10.1016/j.celrep.2021.108895. PMID: 33761362

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Matsuo K, Kawahata I, Melki R, Bousset L, Owada Y, Fukunaga K. Brain Res. 2021 Jun 1;1760:147383. doi: 10.1016/j.brainres.2021.147383. Epub 2021 Feb 24. PMID: 33636166

[Absence of Uptake and Prion-Like Spreading of Alpha-Synuclein and Tau After Intravitreal Injection of Preformed Fibrils.](#)

Veys L, Van Houcke J, Aerts J, Van Pottelberge S, Mahieu M, Coens A, Melki R, Moechars D, De Muyndck L, De Groef L. Front Aging Neurosci. 2021 Jan 15;12:614587. doi: 10.3389/fnagi.2020.614587, PMID: 33519421

[Seeding Propensity and Characteristics of Pathogenic \$\alpha\$ Syn Assemblies in Formalin-Fixed Human Tissue from the Enteric Nervous System, Olfactory Bulb, and Brainstem in Cases Staged for Parkinson's Disease.](#)

Fenyi A, Duyckaerts C, Bousset L, Braak H, Tredici KD, Melki R, On Behalf Of The Brainbank Neuro-Ceb Neuropathology Network. Cells. 2021 Jan 12;10(1):E139. doi: 10.3390/cells10010139. PMID: 33445653

[Intranasal administration of \$\alpha\$ -synuclein preformed fibrils triggers microglial iron deposition in the substantia nigra of *Macaca fascicularis*.](#)

Guo JJ, Yue F, Song DY, Bousset L, Liang X, Tang J, Yuan L, Li W, Melki R, Tang Y, Chan P, Guo C, Li JY. Cell Death Dis. 2021 Jan 13;12(1):81. doi: 10.1038/s41419-020-03369-x. PMID: 33441545

[Dopamine D2 Long Receptors Are Critical for Caveolae-Mediated \$\alpha\$ -Synuclein Uptake in Cultured Dopaminergic Neurons.](#)

Kawahata I, Sekimori T, Wang H, Wang Y, Sasaoka T, Bousset L, Melki R, Mizobata T, Kawata Y, Fukunaga K. Biomedicines. 2021 Jan 8;9(1):E49. doi: 10.3390/biomedicines9010049. PMID: 33429895

[Crucial Role of FABP3 in \$\alpha\$ Syn-Induced Reduction of Septal GABAergic Neurons and Cognitive Decline in Mice.](#)

Matsuo K, Yabuki Y, Melki R, Bousset L, Owada Y, Fukunaga K. Int J Mol Sci. 2021;22(1):400. doi: 10.3390/ijms22010400. PMID: 33401521

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[Novel antibodies detect additional \$\alpha\$ -synuclein pathology in synucleinopathies: potential development for immunotherapy.](#)

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[Distinct alpha-Synuclein species induced by seeding are selectively cleared by the Lysosome or the Proteasome in neuronally differentiated SH-SY5Y cells.](#)

Pantazopoulou M, Brembati V, Kanellidi A, Bousset L, Melki R, Stefanis L.J Neurochem. 2020 Aug 31. doi: 10.1111/jnc.15174. PMID: 32869336

[Prion Amyloid Polymorphs - The Tag Might Change It All.](#) **Bousset L**, Luckgei N, **Kabani M**, Gardienet C, Schütz AK, **Melki R**, Meier BH, Böckmann A. *Front Mol Biosci.* 2020 Aug 6;7:190. doi: 10.3389/fmolb.2020.00190. PMID: 32850974

[Probing amyloid fibril secondary structures by infrared nanospectroscopy: experimental and theoretical considerations.](#) Waeytens J, Mathurin J, Deniset-Besseau A, Arluison V, **Bousset L**, Rezaei H, Raussens V, Dazzi A. *Analyst.* 2020 Oct 27. doi: 10.1039/d0an01545h. PMID: 33107501

[Polypeptides derived from \$\alpha\$ -Synuclein binding partners to prevent \$\alpha\$ -Synuclein fibrils interaction with and take-up by cells.](#) **Monsellier E**, **Bendifallah M**, **Redeker V**, **Melki R**. *PLoS One.* 2020 Aug 13;15(8):e0237328. doi: 10.1371/journal.pone.0237328. PMID: 32790707

[The Yarrowia lipolytica orthologs of Sup35p assemble into thioflavin T-negative amyloid fibrils.](#) **Kabani M**, **Melki R**. *Biochem Biophys Res Commun.* 2020 Aug 27;529(3):533-539. doi: 10.1016/j.bbrc.2020.06.024. PMID: 32736670

[Glucose availability dictates the export of the soluble and prion forms of Sup35p via periplasmic or extracellular vesicles.](#) **Kabani M**, **Pilard M**, **Melki R**. *Mol Microbiol.* 2020 Aug;114(2):322-332. doi: 10.1111/mmi.14515. PMID: 32339313

[The Amphipathic GM1 Molecule Stabilizes Amyloid Aggregates, Preventing their Cytotoxicity.](#) Bucciantini M, Leri M, Stefani M, **Melki R**, Zecchi-Orlandini S, Nosi D. *Biophys J.* 2020 Jul 21;119(2):326-336. doi: 10.1016/j.bpj.2020.06.005. PMID: 32579964

[Disassembly of Tau fibrils by the human Hsp70 disaggregation machinery generates small seeding-competent species.](#) Nachman E, Wentink AS, **Madiona K**, **Bousset L**, Katsinelos T, Allinson K, Kampinga H, McEwan WA, Jahn TR, **Melki R**, Mogk A, Bukau B, Nussbaum-Krammer C. *J Biol Chem.* 2020 Jul 10;295(28):9676-9690. doi: 10.1074/jbc.RA120.013478. PMID: 32467226

[Interaction of the chaperones alpha B-crystallin and CHIP with fibrillar alpha-synuclein: Effects on internalization by cells and identification of interacting interfaces.](#) **Bendifallah M**, **Redeker V**, **Monsellier E**, **Bousset L**, **Bellande T**, **Melki R**. *Biochem Biophys Res Commun.* 2020 Jun 30;527(3):760-769. doi: 10.1016/j.bbrc.2020.04.091. PMID: 32430178

[Hiding in plain sight: vesicle-mediated export and transmission of prion-like proteins.](#) **Kabani M**. *Microb Cell.* 2020 Jun 2;7(7):199-201. doi: 10.15698/mic2020.07.724. PMID: 32656259

[The structural differences between patient-derived \$\alpha\$ -synuclein strains dictate characteristics of Parkinson's disease, multiple system atrophy and dementia with Lewy bodies.](#) Van der Perren A, Gelders G, **Fenyi A**, **Bousset L**, Brito F, Peelaerts W, Van den Haute C, Gentleman S, **Melki R**, Baekelandt V. *Acta Neuropathol.* 2020 Jun;139(6):977-1000. doi: 10.1007/s00401-020-02157-3. PMID: 32356200

[Cell biology and dynamics of Neuronal Na⁺/K⁺-ATPase in health and diseases.](#) **Shrivastava AN**, Triller A, **Melki R**. *Neuropharmacology.* 2020 Jun 1;169:107461. doi: 10.1016/j.neuropharm.2018.12.008. PMID: 30550795

[Dipeptide repeat derived from C9orf72 hexanucleotide expansions forms amyloids or natively unfolded structures in vitro.](#) **Brasseur L**, **Coens A**, Waeytens J, **Melki R**, **Bousset L**. *Biochem Biophys Res Commun.* 2020 May 28;526(2):410-416. doi: 10.1016/j.bbrc.2020.03.108. PMID: 32223927

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[\$\alpha\$ -Synuclein conformational strains spread, seed and target neuronal cells differentially after injection into the olfactory bulb](#). Rey NL, Bousset L, George S, Madaj Z, Meyerdirk L, Schulz E, Steiner JA, Melki R, Brundin P. Acta Neuropathol Commun. 2019 Dec 30;7(1):221. doi: 10.1186/s40478-019-0859-3.PMID: 31888771

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Bieri G, Brahic M, **Bousset L**, Couthouis J, Kramer NJ, Ma R, Nakayama L, Monbureau M, Defensor E, Schüle B, Shamloo M, **Melki R**, Gitler AD. Acta Neuropathol. 2019 Jun;137(6):961-980. doi: 10.1007/s00401-019-01995-0. PMID: 30927072

[Demonstration of prion-like properties of mutant huntingtin fibrils in both in vitro and in vivo paradigms.](#)

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