Curriculum vitae Prof. Anna R. Carta

NAME: Anna R Carta

DATE AND PLACE OF BIRTH: January 16, 1969, Italy

POSITION: Full Professor of Pharmacology, Department of Biomedical Sciences University of Cagliari, Italy

EDUCATION:

University of Cagliari	Higher education degree	1992	Pharmacy
University of Cagliari	PhD	1995	Toxicology
National Institute of Health, Bethesda (MD) Neurophysiology – Systems Neuroscience	Post doctorate	1998	

CHRONOLOGY OF EMPLOYMENT:

2000-2003	Research Associate, University of Cagliari
2003-2015	Assistant Professor, University of Cagliari
2016-2021	Associate Professor of Pharmacology, University of Cagliari
From March 2021	Full Professor of Pharmacology, University of Cagliari

from 2017: Academic Board, Specialization school of Toxicology and Pharmacology at UNICA.

from 2003 Academic Board, PhD program in Neuroscience at UNICA.

from 2019: vice-coordinator of the PhD program in Neuroscience at UNICA.

From 2022: director Inter-department center SLA-motor neuron disorders.

SOCIETIES AND PROFESSIONAL EXPERIENCES:

Memberships: FENS; IBAGS; SINS; SIF; LIMPE; ISN.

Journal editorial boards: Neurotoxicity Research; Experimental Neurology; Guest editor for Parkinson's Disease (Hindawy), Frontiers in Neuroscience.

PERSONAL STATEMENT:

Since several years, the focus of my research has been neuroinflammation and immune responses dysregulation in relation to motor and non-motor symptoms of PD, with the final objective of understanding whether harnessing glial function can be exploited to arrest neuropathology. To address

this goal I have been engaged in preclinical development of a α-synuclein-based model of PD. Misfolded α-synuclein is placed at the intersection between neurodegeneration and inflammation, and soluble oligomeric aggregates display high neurotoxicity with elevated levels measured in biofluids of PD patients. We have shown how the intranigral infusion of exogenous human α-synuclein oligomers induces a number of symptomatic and pathological traits of Parkinson's disease, including motor and non motor signs, and how this is underlined by dysregulated immune response in the brain and periphery. Final goal of our research is the testing and repurposing of drugs with immunomodulatory properties, as disease-modifying treatment for PD. We have been involved in testing the neuroprotective effect of antiinflammatory and immunomodulatory drugs such as IMiDs drugs (Thalidomide derivatives) in preclinical models of PD.

MAIN FUNDED GRANTS:

PNRR: M6/C2_CALL 2023: PNRR-MCNT2-2023-12377900 - F33C24000330006

PNRR 2024: Bando a cascata MNESYS Spoke 7 – PROFILES B33C22001060002

PRIN 2022: P20222F4JY

PRIN 2020: 2020PBS5MJ_004

2020 MJFF Target validation program MJFF-0011332000

2019 NIH PO_75N95D20P00083

2018 RAS, RASSR57484

2013 Perry & Stevens Charitable Foundation, Grant No. 10006298, in collaboration with UTSA;

2013 Fondazione Banco di Sardegna, Prot. U629.2013/AI.553.MGB;

2010 MJFF Target Validation 2010, N. 112-010/2310 in collaboration with UTSA;

2008 Enterprise Ireland PC-2008-318, in collaboration with the Trinity College of Dublin

2004 PRIN 2004: 2004052391_002 Ministry of University and Research

Young Res. Ministry of University and Research, Prot 1214, 27-11-2002

Current international collaborators:

- "National Institute of Aging, Drug Design & Development Section, Translational Gerontology Branch, Baltimore, US". Prof. Nigel Greig.

Selected publications from the last 10 years

1. Vega-Benedetti AF, Porcedda C, Ercoli T, Fusco G, Burgaletto C, Pillai R, Palmas F, Cantone AF, Angius F, Solla P, De Simone A, Cantarella G, Giallongo C, Sogos V, Defazio G, Carta AR. Immune responses to oligomeric α-synuclein in Parkinson's disease peripheral blood mononuclear cells. J Neurol. 2024 Sep;271(9):5916-5929. doi: 10.1007/s00415-024-12554-3. Epub 2024 Jul 10. PMID: 38985290; PMCID: PMC11377674.Fo
2. Indrigo M, Morella I, Orellana D, d'Isa R, Papale A, Parra R, Gurgone A, Lecca D, Cavaccini A, Tigaret

CM, Cagnotto A, Jones K, Brooks S, Ratto GM, Allen ND, Lelos MJ, Middei S, Giustetto M, Carta AR, Tonini R, Salmona M, Hall J, Thomas K, Brambilla R, Fasano S. Nuclear ERK1/2 signaling potentiation enhances neuroprotection and cognition via Importinα1/KPNA2. EMBO Mol Med. 2023 Nov 8;15:e15984. doi: 10.15252/emmm.202215984. PMID: 37792911; PMCID: PMC10630888.

3. Manchinu MF, Pala M, Palmas MF, Diana MA, Maschio A, Etzi M, Pisanu A, Diana FI, Marongiu J, Mansueto S, Carboni E, Fusco G, De Simone A, Carta AR. Region-specific changes in gene expression are associated with cognitive deficits in the alpha-synuclein-induced model of Parkinson's disease: A transcriptomic profiling study. Exp Neurol. 2023 Dec 11;372:114651. doi: 10.1016/j.expneurol.2023.114651.

4. Angius F, Mocci I, Ercoli T, Loy F, Fadda L, Palmas MF, Cannas G, Manzin A, Defazio G, **Carta AR.** Combined measure of salivary alpha-synuclein species as diagnostic biomarker for Parkinson's disease. J Neurol. 2023 Nov;270(11):5613-5621. doi: 10.1007/s00415-023-11893-x.

5. Palmas MF, Etzi M, Pisanu A, Camoglio C, Sagheddu C, Santoni M, Manchinu MF, Pala M, Fusco G, De Simone A, Picci L, Mulas G, Spiga S, Scherma M, Fadda P, Pistis M, Simola N, Carboni E, **Carta AR**. The Intranigral Infusion of Human-Alpha Synuclein Oligomers Induces a Cognitive Impairment in Rats Associated with Changes in Neuronal Firing and Neuroinflammation in the Anterior Cingulate Cortex. Cells. 2022 Aug 24;11(17):2628. doi: 10.3390/cells11172628.

6. Palmas MF, Ena A, Burgaletto C, Casu MA, Cantarella G, Carboni E, Etzi M, De Simone A, Fusco G, Cardia MC, Lai F, Picci L, Tweedie D, Scerba MT, Coroneo V, Bernardini R, Greig NH, Pisanu A, **Carta AR.** Repurposing Pomalidomide as a Neuroprotective Drug: Efficacy in an Alpha-Synuclein-Based Model of Parkinson's Disease. Neurotherapeutics. 2022 Jan 24. doi: 10.1007/s13311-022-01182-2.

7. Boi L, Pisanu A, Palmas MF, Fusco G, Carboni E, Casu MA, Satta V, Scherma M, Janda E, Mocci I, Mulas G, Ena A, Spiga S, Fadda P, De Simone A, **Carta AR**. Modeling Parkinson's Disease Neuropathology and Symptoms by Intranigral Inoculation of Preformed Human α-Synuclein Oligomers. Int J Mol Sci. 2020 Nov 12;21(22):8535. doi: 10.3390/ijms21228535.

8. BOI L., PISANU A., GREIG N.H., SCERBA M.T., TWEEDIE D., MULAS G., FENU S., CARBONI E., SPIGA S., **CARTA A.R.** (2019). IMMUNOMODULATORY DRUGS ALLEVIATE L-DOPA-INDUCED DYSKINESIA IN A RAT MODEL OF PARKINSON'S DISEASE. MOV DISORD. JUL 23. DOI: 10.1002/MDS.27799.

9. Lecca D, Janda E, Mulas G, Diana A, Martino C, Angius F, Spolitu S, Casu MA, Simbula G, Boi L, Batetta B, Spiga S, **Carta AR**. (2018) Boosting phagocytosis and anti-inflammatory phenotype in microglia mediates neuroprotection by PPARγ agonist MDG548 in Parkinson's disease models. BR J PHARMACOL. 175(16):3298-3314. doi: 10.1111/bph.14214.

10. Mulas G, Espa E, Fenu S, Spiga S, Cossu G, Pillai E, Carboni E, Simbula G, Jadžić D, Angius F, Spolitu S, Batetta B, Lecca D, Giuffrida A, **Carta AR**. Differential induction of dyskinesia and neuroinflammation by pulsatile versus continuous l-DOPA delivery in the 6-OHDA model of Parkinson's disease. Exp Neurol. 2016;286:83-92.

11. Joers V, Tansey MG, Mulas G, **Carta AR**. Microglial phenotypes in Parkinson's disease and animal models of the disease. Prog Neurobiol. 2016 Apr 20. pii: S0301-0082(15)30053-8.
12. Pisanu A, Lecca D, Mulas G, Wardas J, Simbula G, Spiga S, **Carta AR**. Dynamic changes in pro- and anti- inflammatory cytokines in microglia after PPAR-γ agonist neuroprotective treatment in the MPTPp mouse model of progressive Parkinson's disease. Neurobiol Dis 2014; 71:280-91.
13. **Carta AR**. PPAR-γ: Therapeutic Prospects in Parkinson's Disease. Current Drug Targets

2013; 14(7):743- 51.
14. **Carta AR**, Carboni E, Spiga S. The MPTP/probenecid model of progressive Parkinson's disease. Methods Mol Biol. 2013; 964:295-308.