

## Asst. Prof. Arjan KORTHOLT

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### Foreign Languages

English, C2 Mastery

### Dissertations

Doctorate, Chemotaxis: a complex network of interconnecting signalling pathways and amplification loops Gedrukt boek, Rijksuniversiteit Groningen, FSE, cell biochemistry, 2009

### Research Areas

Biochemistry, Molecular Biochemistry

### Academic Titles / Tasks

Associate Professor, Suleyman Demirel University, Fen Edebiyat Fakültesi, Kimya Bölümü, 2022 - Continues

### Published journal articles indexed by SCI, SSCI, and AHCI

- I. **LRRK2 protects immune cells against erastin-induced ferroptosis**  
Oun A., Soliman A., Trombetta-Lima M., Tzepapadaki A., Tsagkari D., Kortholt A., Dolga A. M.  
Neurobiology of Disease, vol.175, 2022 (SCI-Expanded)
- II. **The multifaceted role of LRRK2 in Parkinson's disease: From human iPSC to organoids**  
Oun A., Sabogal-Guaqueta A. M., Galuh S., Alexander A., Kortholt A., Dolga A. M.  
NEUROBIOLOGY OF DISEASE, vol.173, 2022 (SCI-Expanded)
- III. **Potential of Whole-Body Vibration in Parkinson's Disease: A Systematic Review and Meta-Analysis of Human and Animal Studies**  
Arauz Y. L. A., Ahuja G., Kamsma Y. P. T., Kortholt A., van der Zee E. A., van Heuvelen M. J. G.  
BIOLOGY-BASEL, vol.11, no.8, 2022 (SCI-Expanded)
- IV. **Editorial: LRRK2-Fifteen Years From Cloning to the Clinic**  
Rideout H., Greggio E., Kortholt A., Nichols R. J.  
FRONTIERS IN NEUROSCIENCE, vol.16, 2022 (SCI-Expanded)
- V. **The beneficial effect of salubrinal on neuroinflammation and neuronal loss in intranigral LPS-induced hemi-Parkinson disease model in rats**  
CANKARA F. N., Kus M. S., Gunaydin C., Safak S., BİLGE S. S., ÖZMEN Ö., Tural E., Kortholt A.

IMMUNOPHARMACOLOGY AND IMMUNOTOXICOLOGY, vol.44, no.2, pp.168-177, 2022 (SCI-Expanded)

- VI. **The Roc domain of LRRK2 as a hub for protein-protein interactions: a focus on PAK6 and its impact on RAB phosphorylation**  
Cogo S., Ho F. Y., Tosoni E., Tomkins J. E., Tessari I., Iannotta L., Montine T. J., Manzoni C., Lewis P. A., Bubacco L., et al.  
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- VII. **Nanobodies as allosteric modulators of Parkinson's disease-associated LRRK2**  
Singh R. K., Soliman A., Guaitoli G., Stoermer E., von Zweydford F., Dal Maso T., Oun A., Van Rillaer L., Schmidt S. H., Chatterjee D., et al.  
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- VIII. **A Phosphosite Mutant Approach on LRRK2 Links Phosphorylation and Dephosphorylation to Protective and Deleterious Markers, Respectively**  
Marchand A., Sarchione A., Athanasopoulos P. S., Bauderlique-Le Roy H., Goveas L., Magnez R., Drouyer M., Emanuele M., Ho F. Y., Liberelle M., et al.  
CELLS, vol.11, no.6, 2022 (SCI-Expanded)
- IX. **Allosteric Inhibition of Parkinson's-Linked LRRK2 by Constrained Peptides**  
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ACS CHEMICAL BIOLOGY, vol.16, no.11, pp.2326-2338, 2021 (SCI-Expanded)
- X. **Forty-five years of cGMP research in Dictyostelium: understanding the regulation and function of the cGMP pathway for cell movement and chemotaxis**  
van Haastert P. J. M., Keizer-Gunnink I., Pots H., Ortiz-Mateos C., Veltman D., van Egmond W., Kortholt A.  
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- XI. **A Conserved Role for LRRK2 and Roco Proteins in the Regulation of Mitochondrial Activity**  
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- XII. **LRRK2 Targeting Strategies as Potential Treatment of Parkinson's Disease**  
Wojewska D. N., Kortholt A.  
BIOMOLECULES, vol.11, no.8, 2021 (SCI-Expanded)
- XIII. **Membrane Targeting of C2GAP1 Enables Dictyostelium discoideum to Sense Chemoattractant Gradient at a Higher Concentration Range**  
Xu X., Bhimani S., Pots H., Wen X., Jeon T. J., Kortholt A., Jin T.  
FRONTIERS IN CELL AND DEVELOPMENTAL BIOLOGY, vol.9, 2021 (SCI-Expanded)
- XIV. **Combined FCS and PCH Analysis to Quantify Protein Dimerization in Living Cells**  
Nederveen-Schippers L. M., Pathak P., Keizer-Gunnink I., Westphal A. H., van Haastert P. J. M., Borst J. W., Kortholt A., Skakun V.  
INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, vol.22, no.14, 2021 (SCI-Expanded)
- XV. **The tale of proteolysis targeting chimeras (PROTACs) for Leucine-Rich Repeat Kinase 2 (LRRK2)**  
Konstantinidou M., Oun A., Pathak P., Zhang B., Wang Z., ter Brake F., Dolga A. M., Kortholt A., Domling A.  
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- XVI. **The neuroprotective action of lenalidomide on rotenone model of Parkinson's Disease: Neurotrophic and supportive actions in the substantia nigra pars compacta**  
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- XVII. **Allosteric inhibition of LRRK2, where are we now**  
Soliman A., CANKARA F. N., Kortholt A.  
BIOCHEMICAL SOCIETY TRANSACTIONS, vol.48, no.5, pp.2185-2194, 2020 (SCI-Expanded)
- XVIII. **Complex Analysis of Fluorescence Intensity Fluctuations of Molecular Compounds**  
Yatskou M. M., Skakun V. V., Nederveen-Schippers L., Kortholt A., Apanasovich V. V.  
JOURNAL OF APPLIED SPECTROSCOPY, vol.87, no.4, pp.685-692, 2020 (SCI-Expanded)

- XIX. **Coordinated Ras and Rac Activity Shapes Macropinocytic Cups and Enables Phagocytosis of Geometrically Diverse Bacteria**  
Buckley C. M., Pots H., Gueho A., Vines J. H., Munn C. J., Phillips B. A., Gilsbach B., Traynor D., Nikolaev A., Soldati T., et al.  
CURRENT BIOLOGY, vol.30, no.15, pp.2912-2931, 2020 (SCI-Expanded)
- XX. **Allosteric modulation of the GTPase activity of a bacterial LRRK2 homolog by conformation-specific Nanobodies**  
Leemans M., Galicia C., Deyaert E., Daems E., Krause L., Paesmans J., Pardon E., Steyaert J., Kortholt A., Sobott F., et al.  
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- XXI. **Linalool attenuates oxidative stress and mitochondrial dysfunction mediated by glutamate and NMDA toxicity**  
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- XXII. **Roco Proteins: GTPases with a Baroque Structure and Mechanism**  
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- XXIII. **Structure and nucleotide-induced conformational dynamics of the Chlorobium tepidum Roco protein**  
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- XXIV. **Biochemical and kinetic properties of the complex Roco G-protein cycle**  
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BIOLOGICAL CHEMISTRY, vol.399, no.12, pp.1447-1456, 2018 (SCI-Expanded)
- XXV. **The role of (auto)-phosphorylation in the complex activation mechanism of LRRK2**  
Athanasopoulos P. S., Heumann R., Kortholt A.  
BIOLOGICAL CHEMISTRY, vol.399, no.7, pp.643-647, 2018 (SCI-Expanded)
- XXVI. **The cytoskeleton regulates symmetry transitions in moving amoeboid cells**  
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- XXVII. **GPCR-controlled membrane recruitment of negative regulator C2GAP1 locally inhibits Ras signaling for adaptation and long-range chemotaxis**  
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- XXVIII. **A homologue of the Parkinson's disease-associated protein LRRK2 undergoes a monomer-dimer transition during GTP turnover**  
Deyaert E., Wauters L., Guaitoli G., Konijnenberg A., Leemans M., Terheyden S., Petrovic A., Gallardo R., Nederveen-Schippers L. M., Athanasopoulos P. S., et al.  
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- XXIX. **The LRR-Roc-COR module of the Chlorobium tepidum Roco protein: crystallization and X-ray crystallographic analysis**  
Deyaert E., Kortholt A., Versees W.  
ACTA CRYSTALLOGRAPHICA SECTION F-STRUCTURAL BIOLOGY COMMUNICATIONS, vol.73, pp.520-524, 2017 (SCI-Expanded)
- XXX. **Coupled excitable Ras and F-actin activation mediates spontaneous pseudopod formation and directed cell movement**  
van Haastert P. J. M., Keizer-Gunnink I., Kortholt A.  
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- XXXI. **The unconventional G-protein cycle of LRRK2 and Roco proteins**  
Terheyden S., Nederveen-Schippers L. M., Kortholt A.

- BIOCHEMICAL SOCIETY TRANSACTIONS, vol.44, pp.1611-1616, 2016 (SCI-Expanded)
- XXXII. **Structural model of the dimeric Parkinson's protein LRRK2 reveals a compact architecture involving distant interdomain contacts**  
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- XXXIII. **A Worldwide Competition to Compare the Speed and Chemotactic Accuracy of Neutrophil-Like Cells**  
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- XXXIV. **A G alpha-Stimulated RapGEF Is a Receptor-Proximal Regulator of Dictyostelium Chemotaxis**  
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- XXXV. **The small GTPases Ras and Rap1 bind to and control TORC2 activity**  
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- XXXVI. **Activation Mechanism of LRRK2 and Its Cellular Functions in Parkinson's Disease**  
Rosenbusch K. E., Kortholt A.  
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- XXXVII. **Direct Interaction between TalinB and Rap1 is necessary for adhesion of Dictyostelium cells**  
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- XXXVIII. **Function and Regulation of Heterotrimeric G Proteins during Chemotaxis**  
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- XL. **Structural Characterization of LRRK2 Inhibitors**  
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- XLI. **Homer3 regulates the establishment of neutrophil polarity**  
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- XLII. **Revisiting the Roco G-protein cycle**  
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- XLIII. **A G alpha stimulated Ras/Rap switch regulates Dictyostelium chemotaxis.**  
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- XLV. **Structural biology of the LRRK2 GTPase and kinase domains: implications for regulation**  
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- XLVI. **Ras activation and symmetry breaking during Dictyostelium chemotaxis**  
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- LIV. **Dictyostelium chemotaxis: essential Ras activation and accessory signalling pathways for amplification**  
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- LVI. **Structure of the Roc-COR domain tandem of C-tepidum, a prokaryotic homologue of the human LRRK2 Parkinson kinase**  
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- LVIII. **Phospholipase C regulation of phosphatidylinositol 3,4,5-trisphosphate-mediated chemotaxis**  
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- LX. **Cyclic AMP signalling in Dictyostelium: G-proteins activate separate Ras pathways using specific**

## RasGEFs

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- LXI. **Regulation of phagocytosis in Dictyostelium by the inositol 5-phosphatase OCRL homolog Dd5P4**  
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- LXIV. **Characterization of the GbpD-activated Rap1 pathway regulating adhesion and cell polarity in Dictyostelium discoideum**  
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## Metrics

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