

Koen J. C. Verbrugghe PhD

Ann Arbor, MI 48105 USA
kjverbrugghe@gmail.com

(734) 276-8846
<http://www.linkedin.com/in/koenverbrugghe>

PhD SCIENTIST

- **Cell Biology**
- **Molecular Biology**
- **Genetics**

Experienced Scientist with proven record of productivity in industry and academia. Expertise in cell and molecular biology especially genetics, microscopy and flow cytometry. Demonstrated ability to adapt and learn quickly and to prioritize, troubleshoot and deliver project.

Core Competencies

- Genetics
- Molecular Biology
- Cell Biology
- Microscopy
- Flow Cytometry
- Product Development
- Project Management
- Communication

Professional Experience

Lykos Scientific LLC, Ann Arbor MI

Consulting Scientist (2016-present)

- Started consulting company to help companies do good science
- Worked with BD and Menlo to continue software development, assay integration and regulatory submission.
- Worked with Zomedica Pharmaceutical to begin assay development for cancer diagnosis if dogs.

Zomedica Pharmaceutical, Ann Arbor MI

Associate Director of R&D (2017-2018)

- Developed assay to detect circulating tumor cells in dog blood.
- Built up lab capabilities in molecular and cellular biology.

BD Biosciences, Ann Arbor MI

Senior Scientist, R&D (2013-2015)

- Successfully worked with contractor Menlo Innovations to deliver softwares for clinical and RUO flow cytometer on time and in budget.
- Lead assay development for clinical system.
- Involved in trouble shooting/evaluating various aspect of system including automation and system sensitivity.
- System Characterization and Verification protocol development and data analysis.

Application Specialist, Marketing and R&D (2011-2013)

- Performed experiments and wrote marketing collateral highlighting features of the Accuri C6 personal flow cytometer
- Designed and Performed testing and product development – Clinical and RUO system, software, applications

University of Michigan Ann Arbor MI

Research Associate, Department of Human Genetics (2009-2011)

- Performed genetic and imaging studies on the affect of chromosome segregation on cytokinesis in *C. elegans*.
- Published 2 peer reviewed papers

University of Wisconsin Madison WI

Research Associate, Department of Zoology (2007-2009)

- Studied the regulation of cytokinesis in *Xenopus* embryos
- Contributed to publication of 2 peer reviewed papers

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University of Cambridge, Cambridge UK.

Research Associate, Cancer Research UK Cell Cycle Genetics Group, Department of Genetics (2006-2007)

- Carried out genetic and biochemical analysis of cytokinesis in *Drosophila*
- Contributed to publication of 1 peer reviewed paper

Educational History

Doctor of Philosophy, Genetics. University Of Wisconsin, Madison, WI.

Cloning and characterization of a gene involved in cytokinesis in *C. elegans*. Mastered advanced microscopy techniques. Published or contributed on 4 peer reviewed papers,

Bachelor's of Science, Biology. California Institute of Technology, Pasadena, CA.

Skills and Abilities

Genetics/Genomics: Expert in *C. elegans* and *Drosophila* genetics, genome wide RNAi screen, SNP mapping, Familiar with numerous genomic resources

Cell Biology: Proficient in *Drosophila* and mammalian Cell Culture and *Xenopus* embryos. Familiar with use of small molecule inhibitors

Molecular Biology/Biochemistry: Proficient with Molecular Cloning, Western Blots, Familiar with Antibody generation and purification, immunoprecipitation and proteomics

Microscopy: Expert in fixed and live imaging, fluorescent and bright field using various microscopes. Familiar with other advanced techniques such as FRET and FLIM

Single Cell Analysis: Expert on microfluidic based cell analysis, Expert on Accuri Personal Flow Cytometer, Proficient with BD FACS Canto and Calibur, RUO and clinical flow cytometry

Communications: Author of 10 peer reviewed research papers and review, author of numerous white papers, tech bulletins, protocols and posters.

Presented my work at numerous international meetings – oral and poster presentations

Presented webinars highlighting technical features of instrument to customers

Active participation/presentation in several campus wide study groups/seminars

Successful collaboration with other research groups leading to 4 additional peer reviewed publications

Project management: Managed software development for clinical and research device, delivered software on time and in budget

Planned, executed and presented results of several characterization and verification studies

Successfully initiated, carried out and published several research projects and collaborations leading to published papers and commercial products.

Managed/mentored students (graduate, undergraduate and high school) and technicians to carry out research projects

Computer Skills: Proficient with Microsoft Office, Photoshop, Illustrator

Familiar with numerous bioinformatic tools/software, statistics, imaging software

Language Skills: Fluent in French

Technical Adendum

Commercial Products

<http://www.bdbiosciences.com/us/instruments/clinical/cell-analyzers/bd-facsvia/m/3694812/overview>
<http://www.bdbiosciences.com/us/instruments/research/cell-analyzers/bd-accuri/m/1294932/overview>
<http://investors.zomedica.com/phoenix.zhtml?c=254360&p=irol-newsArticle&ID=2323734>

Publications

Research Papers

- Verbrugghe KJ**, JN Bembenek, J Khanikar, G Csankovszki and RC Chan. Condensin I and the spindle midzone prevent cytokinesis failure induced by chromatin bridges in *C. elegans* embryos. *Curr Biol*. 2013 Jun 3; 23(11):937-46. PMID: 23684975.
- Clark AG, Sider JR, **Verbrugghe K**, Fenteany G, von Dassow G, Bement WM. Identification of small molecule inhibitors of cytokinesis and single cell wound repair. *Cytoskeleton* (Hoboken). 2012 Nov; 69(11):1010-20. PMID: 23125193
- Bassi ZI, **KJ Verbrugghe**, L Capalbo, E Montembault, S Gregory, DM Glover and PP D'Avino. Sticky/Citron kinase maintains a focused zone of RhoA at the cleavage site during cytokinesis. *J. Cell Biol*. 2011 Nov 14; 195: 595-603. PMID: 22084308
- Verbrugghe KJC** and RC Chan. Imaging *C. elegans* Embryos using an Epifluorescent Microscope and Open Source Software. <http://www.jove.com/details.stp?id=2625> doi: 10.3791/2625. *J Vis Exp*. 49 (2011). PMID: 21490567.
- von Dassow G, **KJ Verbrugghe**, AL Miller, JR Sider, and WM Bement. Action at a distance during cytokinesis. *J. Cell Biol*. 2009 Dec 14; 187: 831-845. PMID: 20008563.
- Heallen TR, HP Adams, T Furuta, **KJ Verbrugghe**, and JM Schumacher. An Afg2/Spaf-related Cdc48-like AAA ATPase is a bi-functional inhibitor of the *C. elegans* Aurora B kinase AIR-2. *Dev Cell*. 2008 Oct;15(4):603-16. PMID: 18854144.
- Verbrugghe KJ** and JG White. Cortical centralspindlin and G α have parallel roles in furrow initiation in early *C. elegans* embryos. *J. Cell Sci*. 2007 May 15; 120(10): 1772-8. PMID: 17456550.
- Verbrugghe KJ** and JG White. SPD-1 is required for the formation of the spindle midzone but is not essential for the completion of cytokinesis in *C. elegans* embryos. *Curr Biol* 2004 Oct 5; 14(19): 1755-1760. PMID: 15458647.
- Vernooy SY, V Chow, J Su, **K Verbrugghe**, J Yang, S Cole, MR Olson, BA Hay. *Drosophila* bruce can potently suppress rpr- and grim-dependent but not hid-dependent cell death. *Curr Biol* 2002 Jul 9; 12(13): 1164-8. PMID: 12121627.

Reviews

Otegui M¹, **KJ Verbrugghe**¹ and AR Skop. Midbodies and phragmoplasts; analogous structures required for cytokinesis. *Trend In Cell Biology*. 2005 Aug;15(8):404-13 PMID: 16009554. ¹Contributed Equally

Thesis

Verbrugghe KJC. The Role of SPD-1 and the spindle midzone in cytokinesis in the early *Caenorhabditis elegans* embryo. August 2006.

Invited Talks and Conference Presentations

- 2006 Invited Seminar, The Wellcome Trust and Cancer Research UK Gurdon Institute
- 2005 CMB Seminar, Durham University
Glover Lab, Department of Genetics University of Cambridge
- 2002 Minisymposium - American Society for Cell Biology Annual Meeting San Fransisco CA
Platform Talk - Midwest Worm Meeting. St Louis MO.
- 1999-present Additionally presented 13 posters at meetings, co-author on 3 posters and my work was presented in a talk at the ASCB 2004 Summer Meeting on Cytokinesis, the ASCB 2008 Annual Meeting and the 2011 International Worm Meeting.

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Honors and Awards

Awarded Michael Guyer Post-Doctoral Fellowship 2008

Awarded NIH Postdoctoral Fellowship 2007

First Place Poster Prize, 2005 International *C. elegans* Meeting, Los Angeles CA

Awarded travel grant to ASCB Summer Meeting on Cytokinesis 2004 and ASCB annual meeting 2000

Awarded Carl and Shirley Larson Fellowship 1997

Professional Affiliation

Member American Society for Cell Biology - 2000 to 2005, 2008 – present

Additional Research Experience

1999 Undergraduate Independent Research, California Institute of Technology, Pasadena CA.

Molecular cloning to study gene expression in *C. elegans*

1997 Summer Undergraduate Research Fellowship, California Institute of Technology, Pasadena CA.

Genetic screen in *Drosophila*. Contributed to publication of peer reviewed paper.