Angela K. Pannier, Ph.D.

Maxcy Professor of Agriculture and Natural Resources
Professor of Biological Systems Engineering
Institute of Agriculture and Natural Resources
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1. EDUCATION AND EMPLOYMENT

1.1 Education History

Ph.D., Biological Sciences — Jan 2003 – Jun 2007
Northwestern University, Evanston, IL

M.S., Biological Systems Engineering — May 2001 – Dec 2002
University of Nebraska, Lincoln, NE

B.S., Biological Systems Engineering — Aug 1997 – May 2001
Graduation with Honors and Highest Distinction
University of Nebraska, Lincoln, NE

1.2 Employment History

Maxcy Professor of Agriculture and Natural Resources — Jan 2020 -- Present
Institute of Agriculture and Natural Resources, University of Nebraska, Lincoln, NE

Professor of Biological Systems Engineering and — July 2018 – Present
Biomedical Engineer, University of Nebraska, Lincoln, NE

Visiting Scholar, Leibniz-Institut für Polymerforschung, — May 2017 – July 2017
Dresden e. V., Germany

College of Engineering William E. Brooks Engineering — Sept 2014 –Aug 2018
Leadership Fellow, University of Nebraska, Lincoln, NE

Associate Professor (by Courtesy), Department of Surgery — Aug 2013 – Present
and Mary and Dick Holland Regenerative Medicine Program,
University of Nebraska Medical Center, Omaha, NE

Associate Professor of Biological Systems Engineering and — July 2013– June 2018
Biomedical Engineer, University of Nebraska, Lincoln, NE

Assistant Professor of Biological Systems Engineering and — Oct 2007 – Jun 2013
Biomedical Engineer, University of Nebraska, Lincoln, NE

Graduate Research Assistant, Departments of Chemical and — Jan 2003 – Jun 2007
Biological Engineering and Interdepartmental Biological Sciences,
Northwestern University, Evanston, IL

Graduate Research Assistant, Department of Biological — Jan 2001 – Dec 2002
Systems Engineering, University of Nebraska, Lincoln, NE

2. AWARDS

2.1 National and International Awards and Recognition

- Big Ten Academic Alliance Academic Leadership Program Fellow (2019-2020)
- Presidential Early Career Award for Scientist and Engineers (awarded in 2019 for 2017)
- National Institutes of Health Director's New Innovator Award (2017)
- National Science Foundation CAREER Award (2013)
- American Heart Association Scientist Development Grant (2010)
- *Acta Biomaterialia* Author Award (2005)
- National Institutes of Health Predoctoral Training Grant Fellow (2004)
- National Science Foundation Graduate Research Fellow (2001)
- Barry M. Goldwater Scholar (2000)

2.2 Regional and Local Awards and Recognition

- 2020 UNL College of Engineering Faculty Research and Creative Activity Award
- 2020 UNL Gamma Sigma Delta Outstanding Researcher Award
- 2019-2020 Co-Chair of UNL University-Wide N2025 Strategic Plan
- 2019 UNL College of Engineering Excellence in Research Award
- 2019 UNL College Distinguished Teaching Award
- 2019 College of Engineering Holling Family Master Teacher Award
- 2018 UNL Parents Association Teaching Award
- 2017 UNL Outstanding Undergraduate Research Mentor Award
- 2017 UNL College of Engineering Tau Beta Pi Distinguished Teaching Award
- 2016 UNL Darrell W. Nelson Excellence in Graduate Student Advising Award
- 2016 UNL College of Agriculture and Natural Resources Fellow
- UNL College of Engineering William E. Brooks Leadership Fellow (2014-2018)
- Mortar Board Professor of the Month (February 2013)
- 2012 IANR Dinsdale Family Faculty Award
- 2012 UNL Advance Ambassador
- Gamma Sigma Delta Membership (2011)
- 2010 Honorary Member of Black Masque Chapter of Mortar Board (Faculty Inductee)
- 2008 Nebraska EPSCoR First Award
- Cooper/Sharpless Graduate Research Fellow (UNL, 2001)
- University of Nebraska Reichenbach Fellow (2001)

3. PUBLICATIONS, PRESENTATIONS, AND PATENTS

3.1 *Selected* Peer Reviewed Journal Publications *(from last 5 years only, out of 49 total published or under review, plus 4 in preparation, H-Index: 21)*

1. Kozisek T_{3*}, Hamann A_3, Samuelson L_3, **Pannier AK**. Screening of DNA vectors for enhanced nonviral gene delivery to human mesenchymal stem cells (in preparation).
2. Walsh SC_3, Miles JR, Wright-Johnson EC, Keel B, Rempel LA, **Pannier AK.** Transcriptomic profiles of porcine embryos progressing through the initiation of conceptus elongation: I. Uniform populations of in vivo-produced spherical, ovoid, or tubular porcine embryos (in preparation).
3. Lampe AT_3, Farris EJ_3, Brown DM**, Pannier AK**. 2020. High and low molecular weight chitosan act as adjuvants during a single dose influenza A virus protein vaccination (in preparation).

**Subscripts indicate student and other co-authors under my supervision:*
1: Undergraduate student; 2: Master's student; 3: Ph.D. student
4: Postdoctoral researcher

4. Nguyen A[3], Zuhlke C, Alexander D, **Pannier AK**. 2020. Screening parameters that enhance nonviral gene delivery to human mesenchymal stem cells on porous titanium surface topographies defined by femtosecond laser processing (in preparation).
5. Kozisek T[3], Hamann A[3], Nguyen A[3], Miller M[1], Plautz S, **Pannier AK**. 2020. High-Throughput Screening of Clinically Approved Drugs that Primer Nonviral Gene Delivery to Human Mesenchymal Stem Cells (under revision).
6. Lampe AT[3], Lal Puniya B, **Pannier AK**, Helikar T, Brown DM 2020. Combined TLR4 and TLR9 agonists induce distinct phenotypic changes in innate immunity in vitro and in vivo (under review).
7. Hamann A[3], Kozisek T[3], Broad K[1], **Pannier AK.** 2020. Glucocorticoid Priming of Nonviral Gene Delivery to Human Mesenchymal Stem Cells Increases Transfection by Reducing Induced Stresses (under revision).
8. Hamann A[3], Thomas AK, Kozisek T[3], Farris E[3], Lück S, Zhang Y, **Pannier AK**. 2020. Screening a chemically defined extracellular matrix mimetic substrate library to identify substrates that enhance substrate-mediated transfection. *Experimental Biology and Medicine* (Epub ahead of print).
9. Walsh SC[3], Miles JR, Yao L, Broeckling CD, Rempel LA, Wright-Johnson EC, **Pannier AK**. 2020. Metabolic compounds within the porcine uterine environment are unique to type of conceptus present during the early stages of blastocyst elongation. *Molecular Reproduction and Development* 87(1):174-190.
10. Hamann A[3], Nguyen A[3], **Pannier AK**. 2019. Nucleic acid delivery to mesenchymal stem cells: a review of nonviral delivery methods and applications. *J Biol. Engineering*. 13:7.
11. Mantz A[3], Rosenthal A, Farris E[3], Kozisek T[3], Bittrich E, Nazari S, Schubert E, Schubert M, Stamm M, Uhlmann P, **Pannier AK**. 2019. Free polyethylenimine enhances substrate-mediated gene delivery on titanium substrates modified with RGD-functionalized poly(acrylic acid) brushes. *Frontiers in Chemistry: Poly. Chemistry.* 7:51.
12. Mantz A[3] and **Pannier AK**. 2019. Biomaterial substrate modifications that influence cell-material interactions to prime cellular responses to nonviral gene delivery. *Experimental Biology and Medicine*. 244(2):100-113.
13. Hamann A[3], Broad K[1], Nguyen A[3], **Pannier AK**. 2019. Mechanisms of unprimed and dexamethasone-primed nonviral gene delivery to human mesenchymal stem cells. *Biotechnology and Bioengineering.* 116(2):427-443.
14. Farris E[3], Heck K[3], Lampe AT[3], Brown DM, Ramer-Tait A, and **Pannier AK**. 2018. Oral non-viralgene delivery for applications in DNA vaccination and gene therapy. *Current Opinion in Biomedical Engineering.* 7:51-57.
15. Iverson NM, Keshwani JR, **Pannier AK**, Plautz SA. 2018. Engineering Nanoparticles for the Body. *Science Scope*. 41 (7): 1-10.
16. Erickson AG, Laughlin TD[2], Romereim SM, Sargus-Patino CN[2], **Pannier AK**, Dudley AT. 2018. A tunable, three-dimensional in vitro culture model of growth plate cartilage using alginate hydrogel scaffolds. *Tissue Engineering, Part A.* 24(1-2): 94-105.
17. Rosenthal A, Mantz A[3], Bittrich E, Schubert E, Schubert M, Stamm M, **Pannier AK**, Uhlmann P. 2018. Biofunctionalization of Titanium Substrates Using Nanoscale Polymer Brushes with Cell Adhesion Peptides. *J Physical Chemistry: B*. 122 (25): 6543-6550.
18. Laughlin TA[2], Miles JR, Wright-Johnson EC, Rempel LA, Lents CA, and **Pannier AK.** 2017. Development of Pre-implantation Porcine Embryos cultured within Alginate Hydrogel Systems either supplemented with Secreted Phosphoprotein 1 or conjugated with Arg-Gly-Asp Peptide. *Reproduction, Fertility and Development.* 29(12):2345-2356.
19. Miles JR, Laughlin T[2], Sargus-Patino C[2], **Pannier AK**. 2017. In Vitro Porcine Blastocyst Development in Three-Dimensional Hydrogels. *Molecular Reproduction and Development.* 84(9):775-787 (invited).

20. Farris E3, Ramer-Tait A, Brown DM, **Pannier AK**. 2017. Chitosan-Zein Nano-in-Microparticles Capable of Mediating In Vivo Transgene Expression Following Oral Delivery. *Journal of Controlled Release*. 249:150-161.
21. Peev D, Hofmann T, Kananizedeh N, Beeram S, Rodriguez E, Wimer S, Rodenhausen KB, Herzinger CM, Kasputis T4, Pfaunmiller E, Nguyen A3, Korlacki R, **Pannier AK**, Li Y, Schubert E, Hage D, and Schubert M. 2016. Anisotropic Contrast Optical Microscope. *Review of Scientific Instruments*. 87:113701.
22. Farris E3, Brown D, Ramer-Tait A, **Pannier AK.** 2016. Micro and nanoparticles for DNA vaccine delivery. *Experimental Biology and Medicine*. 241(9):919-29.
23. Kelly AM2, Plautz SA, Zempleni J, **Pannier AK**. 2016. Glucocorticoid cell priming enhances transfection outcomes in adult mesenchymal stem cells. *Molecular Therapy.* 24(2):331-41.
24. Nguyen A2, Beyersdorf J1, Riethoven JJ, **Pannier AK**. 2016. High-Throughput Screening of Clinically Approved Drugs that Prime Polyethylenimine Transfection Reveals Modulation of Mitochondria Dysfunction Response Improves Gene Transfer Efficiencies. *Bioengineering & Translational Medicine*. 1(2):123-135.
25. Martin TM3, Wysocki BJ, Wysocki TA, **Pannier AK**. 2015. Identifying intracellular pDNA losses from a model of nonviral gene delivery. *IEEE Trans. NanoBiosci*. 14(4): 455-464.
26. Kasputis T3, Pieper A1, Rodenhausen KB, Schmidt D, Sekora D, Rice C, Franke-Schubert E, Schubert M, **Pannier AK.** 2015. Use of precisely-sculptured thin film (STF) substrates with general ellipsometry to determine spatial distribution of adsorbed fibronectin to nanostructured columnar topographies and effect on cell adhesion. *Acta Biomaterialia.* 18:88-99.
27. Martin TM3, Plautz SA, **Pannier AK**. 2015. Temporal endogenous gene expression profiles in response to lipid-mediated transfection. *J. Gene Medicine.* 17(1-2): 14-32.
28. Martin TM3, Plautz SA, **Pannier AK**. 2015. Temporal endogenous gene expression profiles in response to polymer-mediated transfection and profile comparison to lipid-mediated transfection. *J. Gene Medicine.* 17(1-2): 33-53.

3.2 Books and Book Chapters (all invited)

1. **Pannier AK,** Kozisek T3**,** and Segura T. 2019. Surface- and Hydrogel-Mediated Delivery of Nucleic Acid Nanoparticles. In: Ogris M and Sami H (eds) *Nanotechnology for Nucleic Acid Delivery*: *Methods in Molecular Biology*. Vol. 1943.
2. Kasputis T4, Farris E3, Guerreiro G3, Taylor J2, **Pannier AK**. 2016. *The World Scientific Encyclopedia of Nanomedicine and Bioengineering I*. Liu Y, Wang P, editors. Chapter 6, Substrate-Mediated Gene Delivery; 219-260.
3. Martin TM3, **Pannier AK**. 2016. *The World Scientific Encyclopedia of Nanomedicine and Bioengineering I*. Liu Y, Wang P, editors. Chapter 4, Molecular Mechanisms of Nonviral Gene Delivery; 141-173.
4. **Pannier AK** and Segura T. 2013. Surface- and Hydrogel-Mediated Delivery of Nucleic Acid Nanoparticles. In: Ogris M and Oupicky D (eds) *Nanotechnology for Nucleic Acid Delivery*: *Methods in Molecular Biology*. 948:149-69.

3.3 *Selected* National and International Invited Talks or Keynote Speeches

1. **Pannier AK.** Using Cell Priming and Telecommunications Modeling to Understand and Enhance Nonviral Gene Delivery to Stem Cells. Duke University Department of Biomedical Engineering Graduate Seminar, Durham, NC, February 20, 2020.
2. **Pannier AK**. Designing and Assembly of Nano-Microparticles for Oral Gene Delivery Applications, including DNA Vaccination and Treatment of Gastrointestinal Tract

Disease. American Society of Gene and Cell Therapy Scientific Symposium "Applications of Disease-specific Delivery Systems" Chicago, IL, May 17, 2018.

3. **Pannier AK**. Priming Nonviral Gene Delivery for Stem Cell and Vaccination Applications University of Michigan Dept. of Biomedical Engineering Graduate Seminar, Ann Arbor, MI, March 22, 2018.
4. **Pannier AK**. Improved Nonviral Gene Delivery Systems for Stem Cell Therapy and DNA Vaccination Applications. Division 22B Bionanotechnology Plenary, American Institute of Chemical Engineers, Minneapolis, MN, October 31, 2017 (Invited Plenary).
5. **Pannier AK**. Improving Nonviral Gene Delivery for Medical Applications through Chemical and Physical Priming of Cells. Leibniz-Institut für Polymerforschung Dresden e. V. Institute Lecture, Dresden, Germany, June 21, 2017.
6. Miles JR and **Pannier AK**. In Vitro Porcine Blastocyst Development in Three-Dimensional Alginate Hydrogels. 10th International Conference on Pig Reproduction, Columbia, Missouri, June 11-14, 2017 (Invited Plenary).
7. **Pannier AK**. Designing Nonviral Gene Delivery Systems using Telecommunications Modeling, Cell Priming and Corn? University of Iowa Dept. of Biomedical Engineering Graduate Seminar, Iowa City, IA, March 4, 2016.
8. **Pannier AK.** Biomedical Engineering at the University of Nebraska: Perspectives on Advising, Courses and Design. Institute of Biological Engineering Annual Meeting, St. Louis, MO, March 7, 2015.
9. **Pannier AK**. Designing Nonviral Gene Delivery Systems Using Modeling, Nanotopography and Corn? University of Arkansas Dept. of Chemical Engineering Seminar Series, Fayetteville, AR, March 19, 2015.
10. **Pannier AK**. The Effect of Soluble Uterine Factors on Porcine Embryo Development within a Three-Dimensional Alginate Matrix System. TERMIS-AM 2013 Meeting, Atlanta, GA, November 10-12, 2013.
11. **Pannier AK**. Biomolecule Loading within Nanostructured Thin Films as Cell-Instructive Surfaces for Drug and Gene Delivery. "Design of Cell-Instructive Materials" Symposium at 2013 Materials Research Society Spring Meeting, April 1-5, 2013, San Francisco, CA.
12. **Pannier AK**. The Biology of Transfection: Promoting Gene Delivery through Intracellular Priming, Extracellular Interactions....and Corn? Northwestern University Biotechnology Training Grant Seminar Series, Evanston, IL, December 16, 2011.

3.4 Patents

1. Segura T, Shea LD, **Pannier AK**, Bengali Z, Jang JH, Chung P, and Anderson B. Controlled surface-associated delivery of genes and oligonucleotides. U.S. Patent No. 7,029,697. April 18, 2006.
2. **Pannier AK**, Schubert M, Hofmann T, Kasputis TJ, Herzinger CM, Woollam JA. Method to obtain micrographs of transparent or semi-transparent specimens using anisotropy contrast. U.S. Patent No. 10,026,167. July 17, 2018.

4. RESEARCH FUNDING RECORD

Over 13 years, ~$900,000 total in internally funded research grants ($460,800 as PI) and $17.97 Million total in externally funded research grants ($3.89 Million as PI).

4.1 *Selected* Externally Funded Research Grants

- Supplement to NIH DP2: Engineering Human Mesenchymal Stem Cells through Primed Transfection as a Cell Therapy for Alzheimer's Disease (09/19/2019 – 05/31/2021)
  Sponsor: National Institutes of Health (3DP2EB025760-01S1)
  PI: AK Pannier

Sponsor Amount: $134,572

- Using Cell Priming and Telecommunications Modeling to Enhance Gene Delivery for Stem Cell Therapies, (09/30/2017-06/30/2022)
  Sponsor: National Institutes of Health, DP2 Director's New Innovator (1DP2EB025760-01)
  PI: AK Pannier
  Sponsor Amount: $2,197,500
- INBRE-Nebraska Research Network in Functional Genomics (7/1/2015-6/30/2020)
  Sponsor: National Institutes of Health, NIGMS
  PI: J Turpen; *Role:* UNL Steering Committee member (7.5%)
  Sponsor Amount: $657,480
- Understanding Molecular Factors that Regulate Initiation of Porcine Embryo Elongation (04/01/2017 – 03/31/2020)
  Sponsor: Department of Agriculture-NIFA (2017-67015-26456)
  PI: AK Pannier; *Co-PI:* JR Miles, L Rempel (subaward)
  Sponsor Amount: $465,000
- Stem Cell Expansion and Differentiation on Nanostructured Surfaces Produced by Glancing Angle Deposition, GLAD (08/15/2016-08/15/2018)
  Sponsor: J.A. Woollam Foundation
  PI: AK Pannier
  Sponsor Amount: $77,629
- Improving Teacher Quality through Biomedical Engineering BLAST! Workshops (3/11/2016-5/17/2018)
  Sponsor: Nebraska Coordinating Commission for Postsecondary Education
  PI: J Keshwani; *Co*-PIs: AK Pannier, N Iverson, K Adams
  Sponsor Amount: $43,221
- MRI: Development of an Ion-Beam-assisted Glancing Angle Deposition Tool (iGLAD) for 3D Nanostructure Thin Film Preparation with in-situ Ellipsometry Control, (10/01/2013 to 09/30/2017)
  Sponsor: National Science Foundation (CMMI-1337856)
  PI: E Schubert; *Co*-PIs: S Bartlet-Hunt, D Hage, T Hofman, N Ianno, R Korlack, R Lai, AK Pannier, D Schmidt, M Schubert, A Sinitskiy
  Sponsor Amount: $411,50/*Cost share:* $177,118
- CAREER: Nanostructured Thin Films for Substrate-Mediated Gene Delivery, (07/01/2013 - 06/30/2019)
  Sponsor: National Science Foundation (CBET-1254415)
  PI: AK Pannier
  Sponsor Amount: $419,051
- Nebraska Research Infrastructure Improvement, EPSCoR RII Project: Nanohybrid Materials & Algal Biology, (10/15/2011 to 10/14/2016)
  Sponsor: National Science Foundation (EPS 10040 94)
  PI: F Choobineh co-PI*:* 26 investigators, including AK Pannier
  Sponsor Amount: $12,233,538 (funds available to Pannier: $200,000)
- MRI: Development of Multifunctional CARS (Coherent Anti-Stokes Raman Spectroscopy) Imaging System, (09/01/2011 - 08/31/2014)
  Sponsor: National Science Foundation (1126208)
  PI: Y Lu; co-PIs: AK Pannier, S Ducharme, N Chandra, Y Zhou, P Black
  Sponsor Amount: $266,460/*Cost share***:** $192,120
- Microarray Analysis of Gene Expression Profiles in Cells Transfected with Nonviral Gene Delivery Vectors (01/01/2010 – 12/31/2013)

Sponsor: American Heart Association National Affiliate Scientist Development Grant (#10SDG2640217)
PI: AK Pannier
Sponsor Amount: $307,808

5. SERVICE ACCOMPLISHMENTS

5.1 Editorial and Journal Advisory Boards

- Editorial Board Member, *Experimental Biology and Medicine*, January 2017 – present.
- Editorial Board Member, *Regenerative Medicine Frontiers*, September 2018 – present.
- Advisory Board Member, *Journal of Materials Chemistry B*, January 2020 – present.

5.2 Ad Hoc Journal Reviewer

- Have reviewed for over 50 journals, most recently: *Biomacromolecules, Bioengineering & Biotechnology, Journal of Biomedical Materials Research: Part A, Gene Therapy, Molecular Pharmaceutics, Acta Biomaterialia, Langmuir; ACS Nano, ACS Biomaterials Science & Engineering, Journal of Gene Medicine; International Journal of Pharmaceutics*, *Molecular Therapy*, *Biomaterials, Scientific Reports, Journal of Polymer Science, Part A: Polymer Chemistry, Materials Science & Engineering C; Journal of Physical Chemistry, Journal of Controlled Release, Journal of Tissue Engineering and Regenerative Medicine, ACS Applied BioMaterials, Advanced Biosystems, Biotechnology Progress.*

5.3 Leadership Positions in International and National Organizations

- American Institute of Chemical Engineers (AIChE)
    1. Chair/co-chair of technical sessions in Materials Engineering and Sciences Division (MES) and Food, Pharmaceutical & Bioengineering Division (FPB) (responsible for abstract recruiting, reviewing, session organization and leading at meeting):
        - 2008: Biomaterials for Gene Delivery (MES)
        - 2009: Gene Delivery I, II and III (FPB)
        - 2010: Biomaterials for Gene Delivery (MES)
        - 2011: Building Drug and Gene Delivery into Tissue Engineering (MES)
        - 2012: Biomaterials for Nucleic Acid Delivery (MES)
        - 2013: Biomaterials I, Biomaterials II (MES)
        - 2014: Biomaterials for Drug and Gene Delivery (MES)
        - 2015: Biomaterials for Nucleic Acid Delivery (MES)
        - 2016: Area Plenary: Leaders in Biomaterials (MES)
        - 2017: Biomaterials: Faculty Candidates (MES)

- Biomedical Engineering Society (BMES)
    1. Invited 2017 Biomaterials Track Chair (with Ben Keselowsky, University of Florida)
        - Responsible for recruiting abstract reviewers and submissions, assigning three reviewers to each abstract (240 submitted to Biomaterials Track in 2017), managing reviews and scores, and assembling abstracts into 17 sessions (with 4 additional sessions jointly hosted with other Tracks), and recruiting/assigning all session chairs.
    2. Abstract Reviewer:
        - 2013: Drug Delivery Track

- 2017: Biomaterials Track

3. Chair/co-chair of technical sessions:
    - 2013: Cancer Drug Delivery
    - 2015: Biomaterials for Immunoengineering
    - 2016: Gene Delivery and Genome Bioengineering
    - 2017: Hydrogel Biomaterials

- American Society for Gene and Cell Therapy (ASGCT)
    1. Member of the Nanoagents & Synthetic Formulations Committee (2018- 2021)
        - Responsible for organization of scientific and educational symposia for annual meetings.
    2. Abstract Reviewer for Synthetic/Molecular Conjugates and Physical Methods Sessions (2020)
    3. Session co-chair for Exosome Education Session (2020)

- The Institute of Biological Engineering (IBE)
    1. National Councilor 2001-2002
    2. Chair/co-chair of technical sessions (responsible for abstract recruiting, reviewing, session organization and leading session at meeting):
        - 2010, 2012, 2013, 2014 & 2015: Tissue and Cellular Engineering Session
    3. Graduate Student Poster Judge, 2012, 2013, 2014
    4. Vice Chair of Biomedical Engineering Community, 2012

- ECI Nanotechnology in Medicine II: Bridging Translational in Vitro and in Vivo Interfaces
    1. Organizing session chair for "Biomaterials and the Cellular Niche: Models and Mechanisms" session, at ECI meeting in Albuferia, Portugal, June 4-8, 2018.

5.4 Memberships in Professional Organizations

1. American Association for the Advancement of Science (AAAS)
2. American Society of Gene & Cell Therapy (ASGCT)
3. American Institute of Chemical Engineers (AIChE)
4. The Institute of Biological Engineering (IBE) –past member
5. Biomedical Engineering Society (BMES)
6. Society of Women Engineers (SWE)
7. Society for Experimental Biology and Medicine

5.5 Review panels and dates of service

1. NIH BST-80 AREA Panel (9/2017& 5/2020)
2. NIH Innovator DP2 Study Section (12/2019)
3. NIH Bioengineering SBIR Panel (03/2016 & 11/2016 & 07/2019)
4. NIH IRCN Study Section (3/2019)
5. NIH BST IRG Study Section for Standing Member Proposals (11/2018)
6. NIH GDD Study section (6/2018)
7. NIH NANO Study section (2/2018)
8. NSF BME Program (3/2017)
9. NSF CBET Program (12/2012; 11/2013; 9/2014; 9/2015; 9/2016)
10. Nebraska NSF EPSCoR First Awards (Fall 2015)
11. NIH BMBI Study section (10/2014)
12. Society for Biomaterials (Abstract reviewer, 12/2010)

13. India Science & Technology Partnership (INSTP) at Smithsonian Institution (4/2010)
14. NSF Biomaterials Program (3/2010; 5/2011)
15. Kentucky Science and Engineering Foundation (4/2009; 4/2013)

5.6 *Selected* University Service

5.6.1 Leadership positions on university-wide committees

1. Co-Chair, N2025 Strategy Team, University-Wide Strategic Planning Committee, University of Nebraska, Lincoln, NE (February 2019 – present).
2. Steering Committee Member, NIH INBRE, State-Wide Program, University of Nebraska Medical Center (2018 – present).
3. Chair, IANR Liaison Committee, University of Nebraska, Lincoln, NE (2016).

5.6.2 Membership positions on university wide committees

1. Member, Fred and Pamela Buffet Cancer Center, University of Nebraska Medical Center, (2020 – present).
2. Member, Faculty Advisory Committee, Center for Biotechnology, UNL (2019 – present).
3. Member, Executive Board, Nebraska Drug Development Pipeline (2019 – present).
4. Member (elected), Academic Rights and Responsibilities Panel, UNL (2019 – present).
5. Member, Scientific Research Oversight Committee, UNL (2018 – present).
6. Member, Steering Committee for UNL-AWIS Institutional Partnership (2017 – 2019).
7. Member, Search Committee for Executive Vice Chancellor and Provost, UNL (2016).
8. Member, Chancellor's' Commission on the Status of Women, UNL (2013 –2017).
9. Member, Research Advisory Council, UNL (2013 –2017)
10. Member, Nebraska Center for Materials and Nanoscience, UNL (2009 – present).
11. Member, Center for Drug Delivery and Nanomedicine, University of Nebraska Medical Center, Omaha, NE (2008 –present).

5.6.3 Membership positions on college wide committees

1. Member, College of Engineering Promotion and Tenure Committee (2019 – present).
2. Member, College of Engineering - Curriculum and Standards Subcommittee on Continuous Improvement of Teaching and Learning (2013 –2018, BSE ABET Chair).

5.7 Outreach Activities

1. Bright Lights Middle School Workshop Coordinator for "engineering human body" session (2009 --present).
2. Lincoln Public Schools Summer Workshop for High School Science Teachers (2008).
3. Nebraska BLAST! Workshop Coordinator for Biomedical Engineering: York, NE (June 2014), Lincoln, NE (July 2015, June 2016), Norfolk, NE (July 2016) and Scottsbluff (July 2017)—two day long training sessions for after school educators.
4. Nebraska EPSCoR/NCMN Young Scientist Mentor (for seven different high school students summer long research experiences (2010 – present).

6. *Selected* Teaching Accomplishments

6.1 Postdoctoral researchers supervised

1. Kasputis, Tadas; May 2014 - June 2015.
2. Jiang, Qiuran; September 2012 – March 2013.
3. Han, Zhongji; October 2011 – June 2013.

6.2 PhD students supervised

1. Kasputis, Tadas (May 2014). *Current Employment*: University of Michigan, Ann Arbor.
2. Martin, Tim (May 2014). *Current Employment*: U.S. FDA.
3. Farris, Eric (May 2019). *Current Employment*: Adjuvance Technologies, Inc.
4. Mantz, Amy (August 2019). *Current Employment*: Sedia Biosciences Corp.

6.3 PhD students currently in progress

1. Nguyen, Albert (expected graduation August 2020).
2. Lampe, Anna (expected graduation August 2020).
3. Hamann, Andrew (expected graduation December 2020).
4. Kozisek, Tyler (expected graduation May 2021).
5. Walsh, Sophie (expected graduation, December 2021).
6. Heck, Kari (expected graduation May 2022).
7. Samuelson, Lucas (expected graduation May 2023).

6.4 MS students supervised

1. Duensing, Beth (May 2010). *Current Employment*: Benchmark Biolabs.
2. Singh, Dipika (December 2010). *Current Employment*: University of Colorado.
3. Regier, Mary (August 2011). *Current Employment*: University of Washington.
4. Taylor (Mills), Jessica (August 2013). *Current Employment*: CHI Health.
5. Sargus-Patino, Catherine (December 2013). *Current Employment*: abbVie.
6. Kelly, Abby (August 2014). *Current Employment*: abbVie.
7. Nguyen, Albert (December 2015). *Current Employment*: PhD Student at UNL.
8. Laughlin, Taylor (August 2016). *Current Employment*: Desmet Ballestra.
9. Mantz, Amy (August 2016). *Current Employment*: Sedia Biosciences Corp.
10. Hamann, Andrew (May 2017). *Current Employment*: PhD Student at UNL.

(in addition, served/currently serving on 22 other student committees at UNL, UNMC and IPF)

6.5 Undergraduate students supervised in independent research study

- Previously mentored 38 undergraduate students in Pannier Lab, through UNL UCARE program, NIH INBRE program, or NSF REU program; currently mentoring 4 undergraduate students.

6.6 Conference Proceedings on Teaching: Peer reviewed paper

1. Kelly AM, Lammers A, Jones DD, Stowell R, Hoy R, Curtis E, **Pannier AK**. 2013. Implementation of a “rapid design challenge” in a cross-disciplinary senior capstone course and evaluation of device performance. *American Society for Engineering Education Conference Proceedings*. June 23-26, 2013, Atlanta, GA.

6.7 Course Preparation, Instructor Responsibilities, and Facilities Coordination

1. Developed four new courses:
   - Biomaterials (BSEN 416/816, taught every fall since 2008 until 2018)
   - Tissue Engineering (BSEN 418/818, taught every spring since 2009)
   - Delivery of Nucleic Acids (BSEN 998, taught every other summer since 2008)
   - Gene Editing (BSEN 998, taught in 2016 and 2019)
2. Co-lead instructor for AGEN/BSEN 470/480 Senior Design I and II (Spring 2010-Spring 2013; Fall 2015 – Spring 2018)
3. Coordinator for biological teaching lab in Department