

# NICHOLAS KURT GABLER

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## ***Degrees Held***

Degree	Institution	Year
B. S. Agricultural Science	La Trobe University (Australia)	1999
Ph.D. Agricultural Science (Emphasis: Animal Science/Nutrition)	La Trobe University (Australia)	2005

## ***Summary of Career Employment***

- 2019-Present **Professor**, Swine Nutrition and Physiology, Department of Animal Science, Iowa State University, Ames, Iowa.  
*Appointment: 70% Research, 30% Instruction, B-Base*  
Graduate Faculty Member: *Animal Science, Animal Physiology, Interdepartmental Graduate Program in Nutritional Science*
- 2014-2019 **Associate Professor**, Swine Nutrition and Physiology, Department of Animal Science, Iowa State University, Ames, Iowa.  
*Appointment: 70% Research, 30% Instruction, B-Base*
- 2008- 2014 **Assistant Professor**, Swine Nutrition and Physiology, Department of Animal Science, Iowa State University, Ames, Iowa.  
*Appointment: 70% Research, 30% Instruction, B-Base*
- 2005-2008 **Postdoctoral Research Associate**, Biomedical research and swine nutrition Department of Food Science and Human Nutrition, Iowa State University  
*Appointment: 100% Research*
- 2004-2005 **Postdoctoral Research Associate**, Swine nutrition Department of Animal Science, Purdue University  
*Appointment: 100% Research*

## ***Awards and Honors***

- 2019 College of Agriculture and Life Sciences Mid-Career Research Excellence Award from Iowa State University
- 2015 Early Career Research Award from the Midwest American Society of Animal Science
- 2013 Iowa State University, College of Agriculture and Life Sciences Team research award
- 2011 Peter J. Reeds Young Investigator Award from the American Society of Nutrition

## ***Membership in Professional Societies***

- American Society of Animal Science (2004-present)
- The American Society of Nutrition (2005-2016)
- The Australasian Pig Science Association (2000-2004)

## ***Citation Index***

Google Scholar *H-index* = 33, *I-index* = 63 (March 2020)

## Publications

### Refereed Research Articles

#### *Journal Articles on work conducted 2008-present (Peer reviewed)*

1. Jasper, J. E., O. F. Mendoza, C. M. Shull, W. P. Schweer, K. J. Schwartz and N. K. Gabler (2020) Dietary lysine to metabolizable energy ratio impacts pig performance during a viral challenge. *Journal of Animal Science* In Press
2. Helm E. T., S. M. Curry, C. M. De Mille, W. P. Schweer, E. R. Burrough and N. K. Gabler NK (2020) Impact of viral disease hypophagia on pig jejunal function and integrity. *PloS One* 7;15(1):e0227265. doi: 10.1371/journal.pone.0227265
3. Colpoys, J. D., S. M. Curry, W. P. Schweer and N. K. Gabler (2020) Nutrient supplementation effects on pig performance and sickness behavior during a porcine reproductive and respiratory syndrome virus infection. *Journal of Swine Health and Production*, 28(2), 79-86.
4. Helm, E. T., S. M. Curry, C. M. De Mille, W. P. Schweer, E. R. Burrough, E. A. Zuber, S. M. Lonergan and N. K. Gabler (2019) Impact of porcine reproductive and respiratory syndrome virus on muscle metabolism of growing pigs. *Journal of Animal Science* 97(8): 3213–3227. doi: 10.1093/jas/skz168.
5. Helm, E. T., S. Curry, J. M. Trachsel, M. Schroyen and N. K. Gabler (2019) Evaluating nursery pig responses to in-feed sub-therapeutic antibiotics. *PloS One* 14(4), e0216070. doi: 10.1371/journal.pone.0216070.
6. Gabler, N. K., A. Ramirez and W. P., Schweer (2019). Efficacy of dietary alternatives to growth promoting antibiotics. *AFMA Matrix*, 28(3), pp.39-43.
7. Burrough, E. R., C. De Mille, and N. K. Gabler (2019) Zinc overload in weaned pigs: tissue accumulation, pathology, and growth impacts. *Journal of Veterinary Diagnostic Investigation*, doi: 1040638719852144.
8. Trachsel, J., C. Briggs, N. K. Gabler, H. K. Allen, and C. L. Loving. 2019. Dietary Resistant Potato Starch Alters Intestinal Microbial Communities and Their Metabolites, and Markers of Immune Regulation and Barrier Function in Swine. *Frontiers in Immunology* 10: 1381. doi: 10.3389/fimmu.2019.01381.
9. Gabler, N. K., A. Ramerirez and W. P. Schweer (2019) Efficacy of dietary alternatives to growth promoting antibiotics. *AFMA Matrix* 28(3) 39-43.
10. Helm, E. T., S. M. Curry, K. J. Schwartz, S. M. Lonergan and N. K. Gabler (2019) Mycoplasma hyopneumoniae–Lawsonia intracellularis dual challenge modulates intestinal integrity and function, *Journal of Animal Science* 97(6): 2376–2384 doi: 10.1093/jas/skz112
11. Colpoys, J., D. van Sambeek, C. Bruns, A. Johnson, J. Dekkers, F. Dunshea and N. Gabler (2019) Responsiveness of swine divergently selected for feed efficiency to exogenous adrenocorticotrophic hormone and glucose challenges. *Domestic Animal Endocrinology* 68: 32-38. doi: 10.1016/j.domaniend.2018.12.007.
12. Hines, A.E., M. R. Romoser, Z. E. Kiefer, A. F. Keating, L. H. Baumgard, J. Niemi, N. K. Gabler, J. F. Patience, B. Haberl, N. H. Williams, B. J. Kerr, K. J. Touchette and J. W. Ross. (2019) The impact of dietary supplementation of arginine during gestation in a commercial swine herd: I. Gilt reproductive performance. *Journal of Animal Science* 97(9), 3617-3625 doi: 10.1093/jas/skz233.

13. Li, Q., E. R. Burrough, N. K. Gabler, C. L. Loving, O. Sahin, S. A. Gould and J. F. Patience (2019) A soluble and highly fermentable dietary fiber with carbohydrases improved gut barrier integrity markers and growth performance in F18 ETEC challenged pigs, *Journal of Animal Science* 97(5): 2139–2153, doi: 10.1093/jas/skz093.
14. Lindblom, S. C., N. K. Gabler, E. A. Bobeck and B. J. Kerr (2019) Oil source and peroxidation status interactively affect growth performance and oxidative status in broilers from 4 to 25 d of age, *Poultry Science* 98(4): 1749–1761. doi: 10.3382/ps/pey547.
15. Schweer, W. P. O. F. Mendoza, C. M. Shull, J. Lehman, A. M. Gaines, K. J. Schwartz and N. K. Gabler (2019) Increased lysine: metabolizable energy ratio improves grower pig performance during a porcine reproductive and respiratory syndrome virus challenge, *Translational Animal Science*, 3(1): 393–407. doi: 10.1093/tas/txy108.
16. Mani, V., J. K. Rubach, D. J. Sanders, T. Pham, D. A. Koltjes, N. K. Gabler and M. J. Poss (2019) Evaluation of the protective effects of zinc butyrate in IPEC-J2 cells and grower pigs under heat stress. *Translational Animal Science*, 3(2): 842–854. doi: 10.1093/tas/txz023.
17. Helm, E. T., A. C. Outhouse, K. J. Schwartz, S. M. Lonergan, S. M. Curry, J. C. M. Dekkers, and N. K. Gabler. (2018) Metabolic Adaptation of pigs to a *Mycoplasma hyopneumoniae* and *Lawsonia Intracellularis* dual Challenge. *Journal of Animal Science* 96(8):3196-3207. doi: 10.1093/jas/sky220.
18. Li, Q., S. Schmitz-Esser, C.L. Loving, N.K. Gabler, S.A. Gould, J.F. Patience. (2018) Exogenous carbohydrases added to a starter diet reduced markers of systemic immune activation and decreased *Lactobacillus* in weaned pigs *Journal of Animal Science* 97 (3), 1242-1253. doi: 10.1093/jas/sky393.
19. Olsen, K. M. N. K. Gabler, C. J. Rademacher, K. J. Schwartz, W. P. Schweer, G. G. Gourley, and J. F. Patience. (2018) The effects of group size and sub-therapeutic antibiotic alternatives on growth performance and morbidity of nursery pigs: a model for feed additive evaluation. *Translational Animal Science* 2(3): 298-310 dio: 10.1093/tas/txy068.
20. Schweer W.P., E. R. Burrough, J. F. Patience, B. J. Kerr BJ, and N. K. Gabler. (2018) Impact of *Brachyspira hyodysenteriae* on intestinal amino acid digestibility and endogenous amino acid losses in pigs. *Journal of Animal Science*. 97(1) 257-268. doi: 10.1093/jas/sky393.
21. Schweer W.P., J. F. Patience, E. R. Burrough, B. J. Kerr BJ, and N. K. Gabler. (2018) Impact of PRRSV infection and dietary soybean meal on ileal amino acid digestibility and endogenous amino acid losses in growing pigs. *Journal of Animal Science* 96(5):1846-1859. doi: 10.1093/jas/sky093.
22. Li, Q., N.K. Gabler, C.L. Loving, S.A. Gould, and J.F Patience. (2018) A dietary carbohydrase blend improved intestinal barrier function and growth rate in weaned pigs fed higher fiber diets. *Journal of Animal Science*. doi: 10.1093/jas/sky383.
23. Zhao, L.D., R.P. McMillan, G. Xie, S.G.L.W. Giridhar, L.H. Baumgard, S.W. El-Kadi, J.T. Selsby, J.W. Ross, N.K. Gabler, M.W. Hulver, and R.P. Rhoads. (2018) Heat stress decreases metabolic flexibility in skeletal muscle of growing pigs. *Am J Physiol Regul Integr Comp Physiol*. doi: 10.1152/ajpregu.00404.2017.
24. Curry, S. M., E. R. Burrough, K. J. Schwartz, K. J. Yoon, S. M. Lonergan, and N. K. Gabler. 2018. Porcine epidemic diarrhea virus reduces feed efficiency in nursery pigs. *Journal of Animal Science* In Press. doi: 10.1093/jas/skx005

25. Helm, E. T., A. C. Outhouse, K. J. Schwartz, J. C. M. Dekkers, S. M. Lonergan, W. M. Rauw, and N. K. Gabler. 2018. Impact of *Mycoplasma hyopneumoniae* and *Lawsonia intracellularis* on the performance of pigs divergently selected for feed efficiency. *Journal of Animal Science* In Press. doi:10.2527/tas2017.0054
26. Curry, S. M., K. J. Schwartz, K. J. Yoon, N. K. Gabler, and E. R. Burrough. 2017. Effects of porcine epidemic diarrhea virus infection on nursery pig intestinal function and barrier integrity. *Veterinary Microbiology* 211: 58-66. 10.1016/j.vetmic.2017.09.021
27. Schweer, W.P., J.C. Sparks, J.F. Patience, L. Karriker, K. Schwartz, T.E. Burkey, M. Fitzsimmons, M. Weaver, and N.K. Gabler. (2017) Porcine reproductive and respiratory syndrome virus reduces feed efficiency, digestibility and lean tissue accretion in grow-finish pigs. *Translational Animal Science*. 1(4): 480-488 doi:10.2527/tas2017.0054
28. Curry, S. M., K. Gibson, E. Burrough, K. Schwartz, K. J. Yoon, and N. K. Gabler. (2017) Nursery pig growth performance and tissue accretion modulation due to porcine epidemic diarrhea virus or porcine deltacoronavirus challenge. *Journal of Animal Science* 95:173–181 doi:10.2527/jas2016.1000
29. Brownstein, A. J., S. Ganesan, C. M. Summers, S. Pearce, B. J. Hale, J. W. Ross, N. Gabler, J. T. Seibert, R. P. Rhoads, L. H. Baumgard, and J. T. Selsby. 2017. Heat stress causes dysfunctional autophagy in oxidative skeletal muscle. *Physiology Report* 5. 10.14814/phy2.13317
30. Cruzen, S. M., L. H. Baumgard, N. K. Gabler, S. C. Pearce, and S. M. Lonergan. 2017. Temporal proteomic response to acute heat stress in the porcine muscle sarcoplasm *Journal of Animal Science* 95: 3961-3971. 10.2527/jas2017.1375
31. Ganesan, S., C. M. Summers, S. C. Pearce, N. K. Gabler, R. J. Valentine, L. H. Baumgard, R. P. Rhoads, and J. T. Selsby. 2017. Short-term heat stress causes altered intracellular signaling in oxidative skeletal muscle. *Journal of Animal Science* 95: 2438-2451. 10.2527/jas.2016.1233
32. Ganesan, S., O. Volodina, S. C. Pearce, N. K. Gabler, L. H. Baumgard, R. P. Rhoads, and J. T. Selsby. 2017. Acute heat stress activated inflammatory signaling in porcine oxidative skeletal muscle. *Physiological Report* 5. 10.14814/phy2.13397
33. Kellner, T. A., N. K. Gabler, and J. F. Patience. 2017. The composition of dietary fat alters the transcriptional profile of pathways associated with lipid metabolism in the liver and adipose tissue in the pig. *Journal of Animal Science* 95: 3609-3619. 10.2527/jas.2017.1658
34. Rauw, W. M., E. J. Mayorga, S. M. Lei, J. C. M. Dekkers, J. F. Patience, N. K. Gabler, S. M. Lonergan, and L. H. Baumgard. 2017. Effects of Diet and Genetics on Growth Performance of Pigs in Response to Repeated Exposure to Heat Stress. *Frontiers in Genetics* 8: 155. 10.3389/fgene.2017.00155
35. Volodina, O., S. Ganesan, S. C. Pearce, N. K. Gabler, L. H. Baumgard, R. P. Rhoads, and J. T. Selsby. 2017. Short-term heat stress alters redox balance in porcine skeletal muscle. *Physiological Report* 5. 10.14814/phy2.13267
36. Lyte, J., N.K. Gabler and J. Hollis (2016) Postprandial serum endotoxin in healthy humans is modulated by dietary fat in a randomized, controlled, cross-over study. *Lipids in Health and Disease*. 15(1):186-190.
37. Boddicker RL, Koltes JE, Fritz-Waters ER, Koesterke L, Weeks N, Yin T, Mani V, Nettleton D, Reecy JM, Baumgard LH, Spencer JD, Gabler NK, Ross JW. (2016) Genome-wide

methylation profile following prenatal and postnatal dietary omega-3 fatty acid supplementation in pigs. *Animal Genetics* 47(6):658-671. doi: 10.1111/age.12468.

38. Liu F., Cottrell J.J, Furness J.B, Rivera L.R, Kelly F.W, Wijesiriwardana U, Pustovit R.V, Fothergill L.J, Bravo D.M, Celi P, Leury B.J, Gabler N.K, Dunshea F.R. (2016) Selenium and vitamin E together improve intestinal epithelial barrier function and alleviate oxidative stress in heat-stressed pigs. *Experimental Physiology*. 2016 Jul 1;101(7):801-10
39. Koltjes D.A and N.K. Gabler (2016) Characterization of porcine intestinal enteroid cultures under a lipopolysaccharide challenge. *Journal of Animal Science* 94:335–339 doi: 10.2527/jas.2015-9793.
40. Pearce, S. C., W.P. Schweer, K. J. Schwartz, K. J. Yoon, S. M. Lonergan and N. K. Gabler (2016) Pig jejunum protein profile changes in response to a porcine epidemic diarrhea virus challenge. *Journal of Animal Science* 94:412–415 doi: 10.2527/jas.2015-9815.
41. Schweer, W. P., K. Schwartz, E. R. Burrough, K. J. Yoon, J. C. Sparks, and N. K. Gabler. (2016) The effect of porcine reproductive and respiratory syndrome virus and porcine epidemic diarrhea virus challenge on growing pigs I: Growth performance and digestibility. *Journal of Animal Science* 94:2: 514-522.
42. Schweer, W., S. Pearce, E. Burrough, K. Schwartz, K. Yoon, J. Sparks, and N.K. Gabler. (2016) The effect of porcine reproductive and respiratory syndrome virus and porcine epidemic diarrhea virus challenge on growing pigs II: Intestinal integrity and function. *Journal of Animal Science* 94:2: 523-532.
43. Kellner TA, Baumgard LH, Prusa KJ, Gabler NK, Patience JF. (2016) Does heat stress alter the pig's response to dietary fat? *Journal of Animal Science* 94(11): 4688-4703. doi: 10.2527/jas.2016-0756.
44. Ganesan S, Reynolds C, Hollinger K, Pearce SC, Gabler NK, Baumgard LH, Rhoads RP, Selsby JT. (2016) Twelve hours of heat stress induces inflammatory signaling in porcine skeletal muscle. *American Journal of Physiology* 310(11): R1288-96. doi: 10.1152/ajpregu.00494.2015.
45. Colpoys JD, Johnson AK, Gabler NK (2016) Daily feeding regimen impacts pig growth and behavior. *Physiology and Behavior* 159:27-32. doi: 10.1016/j.physbeh.2016.03.003.
46. Pearce, S. C., S. M. Lonergan, E. Huff-Lonergan, L. H. Baumgard, and N. K. Gabler. (2015) Acute Heat Stress and Reduced Nutrient Intake Alter Intestinal Proteomic Profile and Gene Expression in Pigs. *PloS One* 10: e0143099.
47. Pearce, S. C., M. V. Sanz Fernandez, J. Torrison, M. E. Wilson, L. H. Baumgard, and N. K. Gabler. (2015) Dietary organic zinc attenuates heat stress-induced changes in pig intestinal integrity and metabolism. *Journal of Animal Science* 93: 4702-4713.
48. Arkfeld, E. K., J. M. Young, R. C. Johnson, C. A. Fedler, K. Prusa, J. F. Patience, J. C. Dekkers, N. K. Gabler, S. M. Lonergan, and E. Huff-Lonergan. (2015) Composition and quality characteristics of carcasses from pigs divergently selected for residual feed intake on high- or low-energy diets. *Journal of Animal Science* 93: 2530-2545.
49. Carlson, K., S. Pearce, L. Baumgard, N. Gabler, S. Lonergan, and S. Cruzen. (2016) Heat shock protein 27 response to acute heat stress in the porcine semitendinosus. *Meat Science* 112: 171-172.

50. Colpoys, J. D., C. E. Abell, N. K. Gabler, A. F. Keating, S. T. Millman, J. M. Siegford, J. M. Young, and A. K. Johnson. (2015) Feed efficiency effects on barrow and gilt behavioral reactivity to novel stimuli tests. *Journal of Animal Science* 93: 1267-1275.
51. Cruzen, S. M., S. C. Pearce, L. H. Baumgard, N. K. Gabler, E. Huff-Lonergan, and S. M. Lonergan. (2015) Proteomic changes to the sarcoplasmic fraction of predominantly red or white muscle following acute heat stress. *Journal of Proteomics* 128: 141-153.
52. Johnson, J. S., M. V. Sanz Fernandez, N. A. Gutierrez, J. F. Patience, J. W. Ross, N. K. Gabler, M. C. Lucy, T. J. Safranski, R. P. Rhoads, and L. H. Baumgard. (2015) Effects of in utero heat stress on postnatal body composition in pigs: I. Growing phase. *Journal of Animal Science* 93: 71-81.
53. Johnson, J. S., M. V. Sanz Fernandez, J. F. Patience, J. W. Ross, N. K. Gabler, M. C. Lucy, T. J. Safranski, R. P. Rhoads, and L. H. Baumgard. (2015) Effects of in utero heat stress on postnatal body composition in pigs: II. Finishing phase. *Journal of Animal Science* 93: 82-92.
54. Kerr, B., N. Gabler, and G. Shurson. (2015) Compositional effects of corn distillers dried grains with solubles with variable oil content on digestible, metabolizable, and net energy values in growing pigs. *The Professional Animal Scientist* 31: 485-496.
55. Kerr, B., N. Gabler, and G. Shurson. (2015) Formulating diets containing corn distillers dried grains with solubles on a net energy basis: Effects on pig performance and on energy and nutrient digestibility. *The Professional Animal Scientist* 31: 497-503.
56. Mpetile, Z., J. M. Young, N. K. Gabler, J. C. Dekkers, and C. K. Tuggle. (2015) Assessing peripheral blood cell profile of Yorkshire pigs divergently selected for residual feed intake. *Journal of Animal Science* 93: 892-899.
57. S. C. Pearce, M. V. Sanz-Fernandez, J. H. Hollis, L. H. Baumgard and N. K. Gabler (2014). Heat stress induced chronological changes in pig appetite and intestinal function. *Journal of Animal Science* 92(12): 5444-54
58. Cruzen SM, Pearce SC, Baumgard LH, Gabler NK, Huff-Lonergan E, Lonergan SM. (2015) Proteomic changes to the sarcoplasmic fraction of predominantly red or white muscle following acute heat stress. *Journal of Proteomics* 28:141-53.
59. R. L. Boddicker, J. T. Seibert, J. S. Johnson, S. C. Pearce, J. T. Selsby, N. K. Gabler, M. C. Lucy, T. J. Safranski, R. P. Rhoads RP, L. H. Baumgard and J. W. Ross (2014) Gestational heat stress alters postnatal offspring body composition indices and metabolic parameters in pigs. *Plos One* 0;9(11):e110859.
60. Colpoys, J. D., Abell, C. E., Young, J. M., Keating, A. F., Gabler, N. K., Millman, S. T., Siegford, J. M., and Johnson, A. K. (2014). Effects of genetic selection for residual feed intake on behavioral reactivity of castrated male pigs to novel stimuli tests. *Applied Animal Behaviour Science*. 159:34-40.
61. Weber, T. E., van Sambeek, D. M., Gabler, N. K., Kerr, B.J., Moreland, S., Johal, S., and Edmonds, M.S. (2014) Effects of dietary humic and butyric acid on growth performance and response to lipopolysaccharide in young pigs. *Journal of Animal Science* 92(9): 4172-9
62. Jones, C. K., Madson, D. M., Main, R. G., Gabler, N. K., and Patience, J. F. (2014) Poor weaning transition average daily gain in pigs is not correlated with pathological or immunological markers of enteric disease during a porcine reproductive and respiratory syndrome virus outbreak. *Journal of Animal Science* 92(6):2568-2577.

63. Sanz Fernandez, M. V., Pearce, S. C., Mani, V., Gabler, N. K., Metzger, L., Patience, J. F., Rhoads, R. P., and Baumgard L. H. (2014) Effects of dairy products on intestinal integrity in heat-stressed pigs. *Temperature* 1(2): 128-134.
64. Grubbs, J. K., Huff-Lonergan, E., Gabler, N. K., Dekkers, J. C. M., Lonergan, S. M. (2014) Liver and skeletal muscle mitochondria proteomes are altered in pigs divergently selected for residual feed intake. *Journal of Animal Science* 92(5):1995-2007.
65. Montilla, S. I. R., Johnson, T. P., Pearce, S. C., Gardan-Salmon, D., Gabler, N. K. Ross, J. W., Rhoads, R. P., Baumgard, L. H., Lonergan, L. M., and Selsby. (2014) Heat stress causes oxidative stress but not inflammatory signaling in porcine skeletal muscle. *Temperature* 1(1): 42-50.
66. Murugesan, G.R., N. K. Gabler and M.E. Persia. (2014) Effects of direct-fed microbial supplementation on broiler performance, intestinal nutrient transport and integrity under experimental conditions with increased microbial challenge. *British Poultry Science* 55(1): 89-97.
67. Sanz Fernandez, M.V., Pearce, S.C., Gabler, N.K., Patience, J.F., Wilson, M.E., Socha, M.T., Torrison, J.L., Rhoads, R.P., Baumgard, L.H. (2013) Effects of supplemental zinc amino acid complex on gut integrity in heat-stressed growing pigs. *Animal* 8(1):43-50.
68. Pearce, S. C., V. Mani, T. E. Weber, R. P. Rhoads, J.F. Patience, L. H. Baumgard, and N. K. Gabler. (2013) The effects of heat stress and plane of nutrition on intestinal integrity and function in growing pigs. *Journal of Animal Science* 91(11):5183-5193.
69. Pearce, S. C., V. Mani, R. L. Boddicker, J. S. Johnson, T. E. Weber, J. W. Ross, R. P. Rhoads, L. H. Baumgard, and N. K. Gabler. (2013) Heat Stress Reduces Intestinal Barrier Integrity and Favors Intestinal Glucose Transport in Growing Pigs. *PLoS One* 8: e70215.
70. Mani, V., J. H. Hollis, and N. K. Gabler. (2013) Dietary oil composition differentially modulates intestinal endotoxin transport and postprandial endotoxemia. *Nutrition & Metabolism (Lond)* 10: 6.
71. Mani, V., A. J. Harris, A. F. Keating, T. E. Weber, J. C. M. Dekkers and N. K. Gabler (2013) Intestinal integrity, endotoxin transport and detoxification in pigs divergently selected for residual feed intake. *Journal of Animal Science* 91(5):2141-50.
72. Cruzen, S. M., A. J. Harris, K. Hollinger, R. M. Punt, J. K. Grubbs, J. T. Selsby, J. C. M. Dekkers, N. K. Gabler, S. M. Lonergan and E. Huff-Lonergan. (2013) Evidence of decreased muscle protein turnover in gilts selected for low residual feed intake. *Journal of Animal Science* 91(8): 4007-4016.
73. Grubbs, J., A. Fritchen, E. Huff-Lonergan, J. Dekkers, N. Gabler, and S. Lonergan. (2013) Divergent genetic selection for residual feed intake impacts mitochondria reactive oxygen species production in pigs. *Journal of Animal Science* 91: 2133-2140.
74. Grubbs, J., A. Fritchen, E. Huff-Lonergan, N. Gabler, and S. Lonergan. (2013) Selection for residual feed intake alters the mitochondria protein profile in pigs. *Journal of Proteomics* 80: 334-345.
75. Pearce, S., N. Gabler, J. Ross, J. Escobar, J. Patience, R. Rhoads, and L. Baumgard. (2013) The effects of heat stress and plane of nutrition on metabolism in growing pigs. *Journal of Animal Science* 91: 2108-2118.

76. Harris, A. J., J. F. Patience, S. M. Lonergan, J. C. M. Dekkers, and N. K. Gabler. (2012) Improved nutrient digestibility and retention partially explains feed efficiency gains in pigs selected for low residual feed intake. *Journal of Animal Science* 90: 164-166.
77. Jones, C. K., N. K. Gabler, R. G. Main, and J. F. Patience. (2012) Characterizing growth and carcass composition differences in pigs with varying weaning weights and postweaning performance. *Journal of Animal Science* 90: 4072-4080.
78. Pearce, S. C.; Mani, V.; Boddicker, R. L.; Johnson, J. S.; Weber, T. E.; Ross, J. W.; Baumgard, L. H. and N. K. Gabler. (2012) Heat stress reduces barrier function and alters intestinal metabolism in growing pigs. *Journal of Animal Science* 90: 257-259.
79. Rakhshandeh, A., J. C. M. Dekkers, B. J. Kerr, T. E. Weber, J. English and N. K. Gabler. (2012) Effect of immune system stimulation and divergent selection for residual feed intake on digestive capacity of the small intestine in growing pigs. *Journal of Animal Science* 90: 233-235.
80. Boddicker, N., N.K. Gabler, M.E. Spurlock, D. Nettleton and J.C.M. Dekkers. (2011) Effects of ad libitum and restricted feeding on early production performance and body composition of Yorkshire pigs selected for reduced residual feed intake. *Animal: An International Journal of Animal Bioscience* 5: 1344-1353.
81. Boddicker, N., N.K. Gabler, M.E. Spurlock, D. Nettleton and J.C.M. Dekkers. (2011) Effects of ad libitum and restricted feed intake on growth performance and body composition of Yorkshire pigs selected for reduced residual feed intake. *Journal of Animal Science* 89(1):40-51.
82. Smith, R.M., N.K. Gabler J.M. Young, W. Cai, N.J. Boddicker, M.J. Anderson, E. Huff-Lonergan, J.C. Dekkers and S.M. Lonergan. (2011) Effects of selection for decreased residual feed intake on composition and quality of fresh pork. *Journal of Animal Science* 89(1):192-200..
83. Wang H., R.J. Faris, T. M.E. Spurlock and N.K. Gabler. (2009) Increased In Vitro and In Vivo Digestibility of Soy Proteins by Chemical Modification of Disulfide Bonds. *Journal of the American Oil Chemists' Society* 86(11): 1093-1099.

***Work before joining the Department of Animal Science (prior to August 2008)***

1. Davis JE., N.K. Gabler NK., J. Walker-Daniels and M.E. Spurlock. (2009) The c-Jun N-terminal kinase mediates the induction of oxidative stress and insulin resistance by palmitate and toll-like receptor 2 and 4 ligands in 3t3-11 adipocytes. *Hormone and Metabolic Research* 41(7): 523-30.
2. Gabler, N.K., J.S. Radcliffe, J.D. Spencer, D.M. Webel and M.E. Spurlock. (2009) Feeding long chain n-3 polyunsaturated fatty acids during gestation increases intestinal glucose absorption potentially via the acute activation of AMPK. *The Journal of Nutritional Biochemistry* 20(1): 17-25.
3. Davis, J.E., N.K. Gabler, J. Walker-Daniels and M.E. Spurlock. (2008) Tlr-4 Deficiency Selectively Protects Against Obesity Induced by Diets High in Saturated Fat. *Obesity* 16(6): 1248-55.
4. Gabler, N.K., J.D. Spencer, D.M. Webel and M.E. Spurlock. (2007) *In Utero* and Postnatal Exposure to Long Chain n-3 Polyunsaturated Fatty Acids Enhances Intestinal Glucose



Absorption and Energy Stores in Weanling Pigs. *The Journal of Nutrition* 137(11): 2351-2358.

5. Gabler, N.K., J.D. Spencer, D.M. Webel and M.E. Spurlock. (2007) n-3 PUFA attenuate lipopolysaccharide-induced down-regulation of *Toll-like receptor-4* expression in porcine adipose tissue, but do not alter the expression of other immune modulators. *The Journal of Nutritional Biochemistry* 19(1): 8-15.
6. Gabler, N.K., E. Ostrowska, M. Imsic, D.R. Eagling, M. Jois, B.G. Tatham and F.R. Dunshea. (2006) Dietary onion intake as part of a typical high fat diet improves indices of cardiovascular health using the mixed sex pig model. *Plant Foods for Human Nutrition* 61(4): 179-185.
7. Ostrowska E., N.K. Gabler, D. Ridley, D. Suster, D.R. Eagling and F.R. Dunshea. (2006) Extra virgin and refined olive oils decrease plasma triglyceride, moderately affect lipoprotein oxidation susceptibility and increase bone density in growing pigs. *Journal of the Science of Food and Agriculture* 86(12): 1966-1963.
8. Gabler, N.K., E. Ostrowska, S.J. Sterling, R.B. Jones, B.G. Tatham, D.R. Eagling, M. Jois and F.R. Dunshea. (2005) Consumption of raw brown onions variably modulate plasma lipid profile and lipoprotein oxidation in pigs fed a high-fat diet. *Journal of the Science of Food and Agriculture* 85: 154-160.
9. Ostrowska E., N.K. Gabler, S.J. Sterling, B.G. Tatham, R.B. Jones, D.R. Eagling, M. Jois and F.R. Dunshea. (2004) Consumption of brown onions (*Allium cepa* var. *cavalier* and var. *destiny*) moderately modulates blood lipids, haematological and haemostatic variables in healthy pigs. *The British Journal of Nutrition* 91: 1-9.

#### **Peer Reviewed Invited Review Articles and Book Chapters**

1. Gabler, N., and S. Pearce. (2015) The impact of heat stress on intestinal function and productivity in grow-finish pigs. *Animal Production Science* 55: 1403-1410.
2. Ross, J., B. Hale, N. Gabler, R. Rhoads, A. Keating, and L. Baumgard. (2015) Physiological consequences of heat stress in pigs. *Animal Production Science* 55: 1381-1390.
3. Baumgard, L.H., R.P. Rhoads, M.L. Rhoads, N.K. Gabler, J.W. Ross, A.F. Keating, R.L. Boddicker, S. Lenka and V. Sejian. (2012) Impact of climate change on livestock production. Chapter 15. Environmental Stress and Amelioration in *Livestock Production*. Eds. V. Sejian, S.M.K. Naqvi, T. Ezeji, J. Lakritz, and R. Lal.
4. Mani, V., T. E. Weber, L. H. Baumgard, and N. K. Gabler. (2012) Growth and Development Symposium: Endotoxin, inflammation, and intestinal function in livestock. *Journal of Animal Science* 90: 1452-1465.
5. Hill, R.A., E.E. Connor, S.P. Poulos, T.H. Welsh and N.K. Gabler. (2010) Growth and Development Symposium: Fetal programming in animal agriculture. *Journal of Animal Science* 2010 88: E38-39E.
6. Gabler, N.K. and M.E. Spurlock. (2007) Triennial Growth Symposia: Integrating the immune system with the regulation of growth and efficiency. *Journal of Animal Science* 86(14 Suppl), E64-74.
7. Spurlock, M.E. and N.K. Gabler. (2007) American Society of Nutrition symposium: The Development of Porcine Models of Obesity and the Metabolic Syndrome. *The Journal of Nutrition* 138(2): 397-402.

- Jacobi, S.K., N.K. Gabler, K.M. Ajuwon, J.N. Davis and M.E. Spurlock. (2006) Symposia: Adipocytes, myofibers, and cytokine biology: New horizons in the regulation of growth and body composition. *Journal of Animal Science* 84, E140-E149.

### **Invited Presentations**

#### **National and International Meetings**

- Gabler, N.K. *Impact of weaning stress, disease, and diet on pig performance, intestinal function and integrity.* Midwest Animal Science Meeting, Allee Symposium 2019. March 11-13. Omaha NE.
- Gabler, N.K. *Nutritional science of the health-challenged pig.* American Association of Swine Veterinarians Annual Meeting, Swine Nutrition Symposium 2019. March 9-12. Lake Buena Vista, FL.
- Gabler, N.K. Feeding sick pigs and metabolic Adaptation to Disease. Jefe Nutrition Poultry and Swine Conference. August 27-29, 2018. Quebec, Canada.
- Gabler, N.K. Swine nutrition and pig health. 2nd Sino-U.S. Forum on Swine Industry, Nanjing Agricultural University. September 11-15, 2018. Nanjing, China.
- Gabler, N.K. *Metabolic Adaptation to Disease.* Iowa Swine Day Conference. June 28, 2018. Ames, Iowa.
- Gabler, N.K. *Immunometabolism responses to disease in pigs and its impact on feed efficiency.* ASAS-CSAS Annual Meeting 2018. Meat Science and Muscle Biology Symposium. July 8-12. Vancouver, Canada.
- W. Schweer, A. Ramirez, N. Gabler (2017) Alternatives to in-feed antibiotics for nursery pigs. The XVIII AMENA Congress, Puerto Vallarta, Jalisco, Mexico Oct. 17-21.
- Gabler, N.K. and W. Schweer. *Impact of nutrition on disease susceptibility and the impact of disease on nutrient utilization.* Pig Feed Quality Conference 2016. March 31-April 2, Bangkok, Thailand.
- Gabler, N.K. *Using nutrition to mitigate the negative impact of heat stress in growing pigs.* Pig Feed Quality Conference 2016. March 31-April 2, Bangkok, Thailand.
- Gabler, N.K. *What are the nutritional and metabolic costs of immune system activation in pigs?* Midwest Animal Science Meeting, Non-ruminant Nutrition Symposium 2017. March 14. Omaha NE.
- Gabler, N.K. *Endotoxins as Anti-nutritional Factors.* Biomin World Nutrition Forum 2016. October 12-14, Vancouver, Canada.
- Gabler, N.K. *Impact of heat stress on pig performance and intestinal function.* Australasian Pig Science Association Biennial Conference. November 22-25, 2015. Melbourne, Australia.
- Gabler, N.K. *Research update on nutrition and metabolism needs for health-challenged pigs.* American Association of Swine Veterinarians Annual Meeting 2015. March 1. Orlando, FL, USA.
- Gabler, N.K. *The longitudinal impact of PRRS on metabolism, whole body protein accretion and feed efficiency in grow-finisher pigs.* Midwest Animal Science Meeting Gary Allee Symposium 2014. March 17. Des Moines IA.

15. Gabler, N.K. *Impact of PRRSV on feed efficiency, digestibility and tissue accretion in grow-finisher pigs – a model of how potentially should we alter the nutrition program.* 46<sup>th</sup> University of Nottingham Feed Conference. June 23-25 2014. Sutton Bonington, Leicestershire, UK.
16. Gabler, N.K. *The impact of PRRSV on feed efficiency, digestibility and tissue accretion in grow-finisher pigs.* Allen D. Leman Swine Conference 2013. September 17-19. St Paul, Mn, USA.
17. Gabler, N.K. *Understanding the physiological basis of residual feed intake and feed efficiency.* Poultry Science Association Annual Meetings 2013. July 22-25. San Diego, CA.
18. Gabler, N.K. *The physiological basis defining feed efficiency differences in pigs selected on residual feed intake.* ASAS Joint Annual Meetings 2012. Cell Biology Symposium: Pheonix, USA.
19. Gabler, N.K. *Growth and Development Symposium: Endotoxin, inflammation, and intestinal function in livestock.* ASAS Joint Annual Meetings 2011. New Orleans, USA.
20. Gabler, N.K. *Maternal and postnatal dietary n-3 fatty acids improve piglet performance and health.* 63rd Annual meeting of EAAP 2012. Bratislava, Slovakia.
21. Gabler, N.K. (2013) *The impact of PRRSV on feed efficiency, digestibility and tissue accretion in grow-finisher pigs.* Allen D. Leman Swine Conference, September 17-19. St Paul, Minnesota, USA.
22. Stoakes, S.K., M.V. Sanz-Fernandez, J.S. Johnson, M. Abuajamieh, J.T. Seibert, S.C. Pearce, N.K. Gabler, R.P. Rhoads and L.H. Baumgard. (2013) Environmental heat stress and gut integrity. Proceedings. In 74<sup>th</sup> annual Minnesota Nutrition Conference. Pages 117-133.
23. Gabler, N.K. (2006) How much does immune status influence nutrient requirements? The nutritional regulation of cytokines. 67<sup>th</sup> Minnesota Nutrition Conference, September 19-20<sup>th</sup>, St Paul, Minnesota, USA. Pages 139-148.

#### ***Conference proceedings 2008-present***

1. Gabler, N.K. and W.P. Schweer (2017) Alternatives to in-feed antibiotics for nursery pigs. Minnesota Nutrition Conference, Mankato, MN. Sept. 20-21.
2. Gabler, N.K., A. Ramirez and W.P. Schweer (2017) Efficacy of Sub-Therapeutic Antibiotic Alternatives. Iowa State University James McKean Swine Disease Conference, Ames, IA. Nov. 2-3.
3. C.L. Loving, Z.F. Olson, W.P. Schweer, and N.K. Gabler (2017) Infection with Porcine Reproductive and Respiratory Syndrome virus (PRRSv) impacts immune cell metabolism without evidence of cell-mediated immune response. Journal of Immunology 198 Supplement 1:226.7
4. Hardie, L., Serão, N. V. L., Rowland, R. R. R., Patience, J. F., Dekkers, J. C. M., and Gabler, N. K. (2014, August). Genetic Basis of Digestibility in Nursery Pigs under PRRSV Infection. In *10th World Congress on Genetics Applied to Livestock Production*. ASAS
5. Pearce, S. C., D. M. van Sambeek, M. V. Sanz-Fernandez, L. H. Baumgard, and N. K. Gabler. (2013) Heat stress and feed restriction attenuates intestinal integrity in growing pigs. In *Manipulating Pig Production XIV*, (Ed. J. Pluske) Australasian Pig Science Association:

Werribee, Australia. Page 86.

6. Harris, A. J., J. K. Grubbs, S. M. Lonergan, J. F. Patience, J. C. M. Dekkers and N. K. Gabler. (2013) Divergent selection for residual feed intake alters whole body tissue accretion rate in growing pigs. In *Manipulating Pig Production XIV*, (Ed. J. Pluske) Australasian Pig Science Association: Werribee, Australia. Page 223.
7. N. K. Gabler, S. Frouel, A. Awati, A. Owusu-Asiedu, A. M. Amerah, G. G. Partridge and F. R. Dunshea. (2013) Betaine mitigates intestinal permeability in growing pigs induced by heat stress. In *Manipulating Pig Production XIV*, (Ed. J. Pluske) Australasian Pig Science Association: Werribee, Australia. Page 85.
8. N.K. Gabler, W.P. Schweer, J.F. Patience, L. Karriker, C. Sparks, G. Gourley, M. Fitzsimmons, K. Schwartz and T.E. Burkey (2013) The impact of PRRSV on feed efficiency, digestibility and tissue accretion in grow-finisher pigs. Allen D. Lemans Swine Conference 40: 135-136.

### **Patents**

1. U.S. Patent # 2011/0256170 A1. J. D. Spencer and N. K. Gabler. (2011) Methods for increasing performance of offspring.