dr Anna Nynca

RESEARCH INTERESTS

1. The mechanism of environmental estrogens' action in the ovary.
2. The mechanism of 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) action in ovarian granulosa cells.
3. The role of the aromatic hydrocarbon receptor (AhR) in the regulation of ovarian granulosa cell function.
4. Protective effect of tamoxifen on the ovaries of tumor-bearing rats undergoing chemotherapy.

ORIGINAL RESEARCH ARTICLES

1. **Anna Nynca,** Renata Ciereszko 2006 Effect of genistein on steroidogenic response of granulosa cell populations from porcine preovulatory follicles. Reproductive Biology 6(1):31-50.

2. Anita Franczak, **Anna Nynca,** Kelli E Valdez, KM Mizinga, Brian K Petroff 2006 Effects of acute and chronic exposure to the aryl hydrocarbon receptor agonist 2,3,7,8-tetrachlorodibenzo-p-dioxin on the transition to reproductive senescence in female Sprague-Dawley rats. Biology of Reproduction 74(1):125-30.

3. **Anna Nynca**, Olga Jabłońska, Maria Słomczyńska, Brian K Petroff, Renata Ciereszko 2009 Effects of phytoestrogen daidzein and estradiol on steroidogenesis and expression of estrogen receptors in porcine luteinized granulosa cells from large follicles. J. Physiol. Pharmacol., 60 (2): 95-105.

4. Olga Jabłońska, Joanna Piasecka , Brian K. Petroff, **Anna Nynca,** Gabriela Siawrys, Barbara Wąsowska, Agata Pawłowska, Bogdan Lewczuk, Renata E. Ciereszko 2011 In vitro effects of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) on ovarian, pituitary and pineal function in pigs. Theriogenology 76: 921-932. IF: 2,045; punkty MNiSW: 32

5. **Anna Nynca**, Dominika Słonina, Olga Jabłońska, Barbara Kamińska, Renata Ciereszko 2013 Daidzein affects steroidogenesis and estrogen receptor expression in medium ovarian follicles of pigs. Acta Veterinaria Hungarica 61(1): 85-93. IF: 1,173; punkty MNiSW: 25.

6. **Anna Nynca,** Joanna Nynca, Barbara Wąsowska, Adriana Kolesarova, Agnieszka Kołomycka, Renata E. Ciereszko 2013 Effects of the phytoestrogen, genistein, and protein tyrosine kinase inhibitor– dependent mechanisms on steroidogenesis and estrogen receptor expression in porcine granulosa cells of medium follicles. Domestic Animal Endocrinology 44: 10-18. IF: 2,377; punkty MNiSW: 30.

7. **Anna Nynca**, Sylwia Swigonska, Joanna Piasecka, Agnieszka Kolomycka, Barbara Kaminska, Marta Radziewicz-Pigiel, Marta Gut-Nagel, Renata E. Ciereszko 2013

Biochanin A affects steroidogenesis and estrogen receptor-β expression in porcine granulosa cells. Theriogenology 80: 821-828. IF: 2,082; punkty MNiSW: 35.

8. Barbara Kaminska, Joanna Czerwinska, Bartosz Wojciechowicz, **Anna Nynca**, Renata Ciereszko 2014 Genistein and daidzein affect in vitro steroidogenesis but not gene expression of steroidogenic enzymes in adrenals of pigs. Journal of Physiology and Pharmacology 65(1): 127-33. IF: 2,476; pkt MNiSW: 20

9. Olga Jablonska, Joanna Piasecka-Srader, **Anna Nynca**, Agnieszka Kołomycka, Anna Robak, Barbara Wąsowska, Renata E. Ciereszko 2014 2,3,7,8-tetrachlorodibenzo-p-dioxin alters steroid secretion, but does not affect cell viability and the incidence of apoptosis in porcine luteinised granulosa cells. Acta Veterinaria Hungarica 62 (3): 408-421. IF: 1,173; pkt MNiSW: 25

10. Joanna Piasecka-Srader, Agnieszka Kolomycka, **Anna Nynca**, Renata E. Ciereszko 2014 Effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin and phytoestrogen genistein on the activity and the presence of steroidogenic enzyme proteins in cultured granulosa cells of pigs. Animal Reproduction Science 148: 171-181. IF: 1,581; pkt MNiSW: 30

11. Dorota Juchno, Olga Jabłońska, Alicja Boroń, Roman Kujawa, Anna Leska, Anna Grabowska, **Anna Nynca**, Sylwia Świgońska, Magdalena Król, Aneta Spóz, Natalia Laskowska, Miłosz Lao 2014 Ploidy-dependent survival of progeny arising from crosses between natural allotriploid Cobitis females and diploid C. taenia males (Pisces, Cobitidae). Genetica 142(4): 351-359. IF: 1,746; pkt MNiSW: 20

12. **Anna Nynca**, Agnieszka Sadowska, Karina Orlowska, Monika Jablonska, Renata E. Ciereszko 2015 The effects of phytoestrogen genistein on steroidogenesis and estrogen receptor expression in porcine granulosa cells of large follicles. Folia Biologica 63(2) 119-128. IF: 0,642; pkt MNiSW: 15.

13. Agnieszka Sadowska, **Anna Nynca**, Martyna Korzeniewska, Joanna Piasecka-Srader, Monika Jablonska, Karina Orlowska, Sylwia Swigonska, Renata E. Ciereszko 2015 Characterization of porcine granulosa cell line AVG-16. Folia Biologica (Prague) 61 184-194. IF: 1,000; pkt MNiSW: 20

14. Joanna Piasecka-Srader, Agnieszka Sadowska, **Anna Nynca**, Karina Orlowska, Monika Jablonska, Olga Jablonska, Brian K. Petroff, Renata E. Ciereszko 2016 The combined effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and phytoestrogen genistein on steroid hormone secretion, AhR and ERβ expression and the incidence of apoptosis in granulosa cells of medium porcine follicles. Journal of Reproduction and Development 62(1) 103-113. IF: 1,52; pkt MNiSW: 25

15. Marek Halenar, Eva Tusimova, **Anna Nynca**, Agnieszka Sadowska, Renata Ciereszko, Adriana Kolesarova 2016 Stimulatory effect of amygdalin on the viability and steroid hormone secretion by porcine ovarian granulosa cells *in vitro*. Journal of Microbiology, Biotechnology and Food Sciences 5 44-46. IF: 0,9; pkt MNiSW: 7

16. Karina Orlowska, Tomasz Molcan, Sylwia Swigonska, Agnieszka Sadowska,Monika Jablonska, **Anna Nynca**, Jan P. Jastrzebski, Renata E. Ciereszko 2016 The tertiary structures of porcine AhR and ARNT proteins andmolecular interactions within the TCDD/AhR/ARNT complex. Journal of Molecular Graphics and Modelling 67 119-126. IF: 1,948; pkt MNiSW: 25

17. Magdalena A. Olszewska, Aleksandra M. Kocot, **Anna Nynca**, Łucja Łaniewska Trokenheim 2016 Utilization of physiological and taxonomic fluorescent probes to study Lactobacilli cells and response to pH challenge. Microbiological Research 192 239-246. IF: 2,723, pkt MNiSW: 25.

18. Tomasz Molcan, Sylwia Swigonska, Karina Orlowska, Kamil Myszczynski, **Anna Nynca**, Agnieszka Sadowska, Monika Ruszkowska, Jan Pawel Jastrzebski, Renata E. Ciereszko 2017 Structural-functional adaptations of porcine CYP1A1 to metabolize polychlorinated dibenzo-p-dioxins. Chemosphere 168 205-216. IF: 3,698, pkt MNiSW: 35.

19. Agnieszka Sadowska, Lukasz Paukszto, **Anna Nynca**, Izabela Szczerbal, Karina Orlowska, Sylwia Swigonska, Monika Jablonska, Tomasz Molcan, Jan. P. Jastrzebski, Grzegorz Panasiewicz, Renata E. Ciereszko 2017 Transcript variations, phylogenetic tree and chromosomal localization of the porcine aryl hydrocarbon receptor (AhR) and AhR nuclear translocator (ARNT) genes. Journal of Genetics 96 75-85. doi: 10.1007/s12041-017-0745-3; IF: 1,108; pkt MNiSW: 15.

20. Agnieszka Sadowska, **Anna Nynca**, Monika Ruszkowska, Lukasz Paukszto, Kamil Myszczynski, Karina Orlowska, Sylwia Swigonska, Tomasz Molcan, Jan P. Jastrzebski, Renata E. Ciereszko 2017 Transcriptional profiling of porcine granulosa cells exposed to 2,3,7,8-tetrachlorodibenzo-p-dioxin. Chemosphere 178 368-377. IF: 3,698, pkt MNiSW: 35.

21. Karina Orlowska, Sylwia Swigonska, Agnieszka Sadowska, Monika Ruszkowska, **Anna Nynca**, Tomasz Molcan, Renata E. Ciereszko 2018 The effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin on the proteome of porcine granulosa cells. Chemosphere 212 170-181. IF: 4,427, pkt MNiSW: 35.

22. Monika Ruszkowska, **Anna Nynca**, Lukasz Paukszto, Agnieszka Sadowska, Sylwia Swigonska, Karina Orlowska, et al. 2018 Identification and characterization of long non-coding RNAs in porcine granulosa cells exposed to 2,3,7,8-tetrachlorodibenzo-p-dioxin. J Anim Sci Biotechnol. 9:72, https://doi.org/10.1186/s40104-018-0288-3; IF: 3,205, pkt MNiSW: 40.

23. Tomasz Molcan, Sylwia Swigonska, **Anna Nynca**, Agnieszka Sadowska, Monika Ruszkowska, Karina Orlowska et al. 2019 Is CYP1B1 involved in the metabolism of dioxins in the pig? Biochim Biophys Acta Gen Subj. 1863(2) 291-303.; IF: 3,681, pkt MNiSW: 100.

24. Katarzyna Knapczyk-Stwora, **Anna Nynca**, Renata E. Ciereszko, Lukasz Paukszto, Jan P. Jastrzebski, Elzbieta Czaja, Patrycja Witek, Marek Koziorowski and Maria Slomczynska

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25. Magdalena A. Olszewska, **Anna Nynca**, Ireneusz Białobrzewski, Aleksandra M. Kocot, J Łaguna 2019 Assessment of the bacterial viability of chlorine- and quaternary ammonium compounds-treated Lactobacillus cells via a multi-method approach. J Appl Microbiol. 126(4):1070-1080. doi: 10.1111/jam.14208; IF: 2,160, pkt MNiSW: 70.

26. Magdalena A. Olszewska, **Anna Nynca**, Ireneusz Białobrzewski 2019 Biofilm formation by lactobacilli and resistance to stress treatments. International Journal of Food Science and Technology https://doi.org/10.1111/ijfs.14219; IF: 2,383, pkt MNiSW: 70.

27. **Anna Nynca**, Agnieszka Sadowska, Lukasz Paukszto, Tomasz Molcan, Monika Ruszkowska, Sylwia Swigonska, Karina Orlowska, Kamil Myszczynski, Jan P. Jastrzebski, Renata E. Ciereszko 2019 Temporal changes in the transcriptomic profile of granulosa cells of pigs treated with 2,3,7,8-tetrachlorodibenzo-p-dioxin. Anim Reprod Sci doi.org/10.1016/j.anireprosci.2019.06.007; IF: 1,817, pkt MNiSW: 100.

28. Karina Orlowska, Sylwia Swigonska, Agnieszka Sadowska, Monika Ruszkowska, **Anna Nynca**, Tomasz Molcan, Renata E. Ciereszko 2019 Proteomic changes of aryl hydrocarbon receptor (AhR)-silenced porcine granulosa cell exposed to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Plos One, 14 (10): e0223420; doi:10.1371/journal.pone.0223420; IF: 2,776, pkt MNiSW: 140.

29. Ruszkowska M, Sadowska A, **Nynca A**, Orlowska K, Swigonska S, Molcan T, Paukszto L, Jastrzebski JP, Ciereszko RE. 2020 The effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) on the transcriptome of aryl hydrocarbon receptor (AhR) knock-down porcine granulosa cells. PeerJ 8:e8371 http://doi.org/10.7717/peerj.8371; IF: 2,35, pkt MNiSW: 100.

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31. Agnieszka Sadowska, **Anna Nynca**, Monika Ruszkowska, Lukasz Paukszto, Kamil Myszczynski, Sylwia Swigonska, Karina Orlowska, Tomasz Molcan, Jan P. Jastrzebski, Renata E. Ciereszko 2021 Transcriptional profiling of Chinese hamster ovary (CHO) cells exposed to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Reproductive Toxicology 104: 143-154; doi.org/10.1016/j.reprotox.2021.07.012; IF: 3.121, pkt MNiSW: 70.

32. Katarzyna Ognik, Dariusz Mikulski, Paweł Konieczka, Bartłomiej Tykałowski, Magdalena Krauze, Anna Stępniowska, **Anna Nynca** & Jan Jankowski 2021 The immune status, oxidative and epigenetic changes in tissues of turkeys fed diets with different ratios of arginine and lysine. Sci Rep 11, 15975; doi: https://doi.org/10.1038/s41598-021-95529-y; IF: 4.379, pkt MNiSW: 140.

33. Katarzyna Knapczyk-Stwora, **Anna Nynca**, Sylwia Swigonska, Lukasz Paukszto, Jan P Jastrzebski, Patrycja Witek, Marek Koziorowski, Maria Slomczynska 2022 Effects of neonatal methoxychlor exposure on the ovarian transcriptome in piglets. Anim Reprod Sci 238: 106956. doi: 10.1016/j.anireprosci.2022.106956; IF: 1.66, pkt MNiSW: 140.

34. Sylwia Swigonska, Tomasz Molcan, **Anna Nynca**, Renata E. Ciereszko 2022 The involvement of CYP1A2 in biodegradation of dioxins in pigs. PLoS One 17(5):e0267162; doi: 10.1371/journal.pone.0267162. IF: 3.24, pkt MNiSW: 100.

REVIEWS

1. Olga Kraszewska, **Anna Nynca**, Barbara Kamińska, Renata Ciereszko 2007 Fitoestrogeny. I. Występowanie, metabolizm i znaczenie biologiczne u samic. Postępy Biologii Komórki 34: 189-205.

2. **Anna Nynca,** Olga Kraszewska, Maria Słomczyńska, Renata Ciereszko 2007 Fitoestrogeny. II. Wewnątrzkomórkowy mechanizm działania w układzie rozrodczym samicy. Postępy Biologii Komórki 34: 207-222.

3. Luiza Dusza, Renata Ciereszko, Dariusz Skarżyński, Leszek Nogowski, Marek Opałka, Barbara Kamińska, **Anna Nynca,** Olga Kraszewska, Maria Słomczyńska, Izabela Wocławek-Potocka, Anna Korzekwa, Ewa Pruszyńska-Oszmałek, Katarzyna Szkudelska 2006. Mechanism of phytoestrogens action in reproductive processes of mammals and birds. Reproductive Biology 6 Suppl 1: 151-74.

CHAPTERS IN TEXT BOOKS

1. Renata Ciereszko, **Anna Nynca**, Olga Kraszewska 2007 Phytoestrogen action on the ovary. W: Novel Concepts in Ovarian Endocrinology. W: Novel Concepts in Ovarian Endocrinology. Ed. A. Gonzalez Bulnes; Transworld Research Network, Kerala, Indie, 303-327.

GRANT PROJECTS

PRINCIPAL INVESTIGATOR

1. Identification and comparison of microRNAs involved in the response to 2,3,7,8-tetrachlorodibezo-p-dioxin (TCDD) in pig and hamster granulosa cells, National Science Centre, Poland, 2018-2019.

INVESTIGATOR

1. The role of protein kinases in the prolactin mechanism of action in luteal and theca cells during the early luteal phase of pigs, State Committee for Scientific Research, Poland, 1998-2000.

2. Molecular mechanism of phytoestrogen action in porcine granulosa cells, State Committee for Scientific Research, Poland, 2003-2005.

3. Rola i mechanizm działania estrogenów środowiskowych w komórkach ziarnistych pęcherzyka jajnikowego świni, State Committee for Scientific Research, Poland, 2006-2007.

4. The role of aryl hydrocarbon receptor in the regulation of the ovary in pigs, State Committee for Scientific Research, Poland, 2007-2009.

5. Interactions between genistein and 2,3,7,8-tetrachlorodibenzo-p-dioxin in the regulation of the ovarian granulosa cell functions in the pig, Ministry of Science and Higher Education, Poland, 2011-2013.

6. Physiological and toxicological aspects of the aryl hydrocarbon receptor (AhR) activation in the regulation of granulosa cell function in pigs, National Science Centre, Poland, 2013-2016.

7. Odpowiedź komórkowa biofilmu pałeczek fermentacji mlekowej wyizolowanych z żywności na stresy środowiskowe, National Science Centre, Poland; 2015-2018.

8. Molecular aspects of the effects of hormonally active chemicals on ovarian folliculogenesis in neonatal pigs, National Science Centre, Poland, 2016-2019.

9. The protective mechanism of tamoxifen action in the ovary during chemotherapy, National Science Centre, Poland, 2016-2021.

10. Antyoksydacyjne i immunostymulujące oddziaływanie zróżnicowanych poziomów i wzajemnego stosunku lizyny, metioniny i argininy w mieszankach dla indyków rzeźnych, National Science Centre, Poland; 2018-2021.

11. Determination of antihyperglycemic properties of betalains, National Science Centre, Poland; 2021-2023.

12. Solving speciation mysteries based on a selected fish model, National Science Centre, Poland, 2022-2025.

PhD ADVISOR (Auxiliary advisor)

1. Agnieszka Sadowska. 2017. TCDD-induced changes in the transcriptome of granulosal AVG-16 cell line.

2. Monika Ruszkowska. 2020. The effects of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) on the transcriptome of intact and aryl hydrocarbon receptor (AhR) knock-down AVG-16 cells.