

Animal

U.S. Department of Agriculture <b>Accomplishments Report AD-421</b> U.S. Dept. of Agriculture, State Agricultural Experiment Stations and Other Institutions			Date (Month, Day, Year) <b>03/22/2012</b>
1. Accession <b>0220609</b>	Agency Identification No. 2. NIFA 3. LA.B	5. Work Unit/Project No. <b>LAB94015</b>	6. Status <b>Annual Report</b>
7. Title <b>Germ Cell and Embryo Development and Manipulation for the Improvement of Livestock (from W1171)</b>			
12. Investigator Name(s) (Last Name and Initials) <b>Bondioli, K. R.; Godke, R. A.</b>			
20. Termination Date <b>09/30/2014</b>		40. Period Covered (mo/da/year): <b>01/01/2011 TO 12/31/2011</b>	
Outputs: Research from this project resulted in 5 publications, 2 book chapters and 4 abstracts presented at international meetings. Research from this project has provided incremental knowledge concerning the use of epididymal sperm in in vitro fertilization and assisted reproduction techniques for cattle and endangered species. Data from this project has provided initial characterization of methods to induce pluripotency in bovine somatic cells.			
Outcomes/Impacts: Results from this project have demonstrated methods for cryopreservation of epididymal sperm and characterized the response of these sperm to procedures used in in vitro fertilization. Further understanding of these factors will aid in the utilization of epididymal sperm in assisted reproduction techniques. Epididymal sperm can be used in assisted reproduction techniques when ejaculated sperm are not available which is sometimes the case in domestic animals and is often the case for endangered species. Somatic cell nuclear transfer represents a powerful tool for the production of genetically modified livestock animals to meet the needs of increased food production while minimizing the impact on the environment. Induced pluripotency is an important new technology for creating undifferentiated cell lines. These cells have important implications for technologies such as tissue regeneration and nuclear transfer in both veterinary and human medicine and the production of more efficient livestock. Little is known about this process in livestock species, and the results from this project provide the first steps towards understanding this process and development of efficient methods for the production of induced pluripotent cell lines in livestock species.			
Publications: Ferrer, M. S., S. K. Lyle, D. L. Paccamonti, B. E. Eilts, G. Hosgood, and R. A. Godke. 2011. Persistent breeding-induced endometritis after hysteroscopic insemination in the mare. <i>Reproduction in Domestic Animals</i> : Nov 28. doi: 10.1111/j.1439-0531 [Epub ahead of print] Stamatkin, C. W., R. G. Roussev, M. Stout, C. B. Coulam, E. Triche, R. A. Godke, and E. R. Barnea. 2011. Preimplantation factor negates embryo toxicity and promotes embryo development in culture. <i>Reproductive BioMedicine Online</i> 23: 517-524. Carwell, D., J. Pitchford, H. Blackburn, K. Bondioli, R.A. Godke and G.T. Gentry. 2011. Pregnancy rates in beef cattle artificially inseminated with aged frozen-thawed beef semen. <i>LSU AgCenter Beef &amp; Forage Report</i> 36:55-58. Carwell, D., K. Bondioli, R.A. Godke and G.T. Gentry. 2011. The effect of animal temperament on artificial insemination pregnancy rates in beef cows. <i>LSU AgCenter Beef &amp; Forage Report</i> 36:59-62. J. Campos, G.T. Gentry, R.A. Godke and K. Bondioli. 2011. Effects of serum addition to culture medium in gene expression of day-7 and day-14 bovine embryos. <i>LSU AgCenter Beef &amp; Forage Report</i> 36:63-66. Denniston, R.S., S. Michelet, K.R. Bondioli and R. A. Godke. 2011. Principles of Embryo Cryopreservation. In: <i>Cryopreservation in Aquatic Species</i> , 2nd Edition. T. R. Tiersch and C.C. Green, editors. World Aquaculture Society, Baton Rouge, LA Pp. 274-290. Giraldo, A. M., and K. R. Bondioli. 2011. Inhibition of DNA methylation in somatic cells epigenetics protocols. In: T. O. Tollefsbol (ed.). <i>Methods in molecular biology</i> No. 791. p 145-156. Humana Press. Addison, M. K., L. W. Coley , G. T. Gentry , R. A. Godke and K. R. Bondioli. 2011. Epigenetic Modification With Zebularine			

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Saenz, J. R., C. Dumas , B. L. Dresser , M. C. Gomez , R. A. Godke and C. E. Pope. 2011. Cryopreservation Of Domestic Cat Epididymal Sperm In A Defined Extender Without Animal Or Plant Proteins. *Reproduction, Fertility and Development* 24:139.

Stout, M. A., J. R. Saenz , J. F. Chenevert , G. T. Gentry , K. R. Bondioli and R. A. Godke. 2011. Cryo-Acrosome Reaction/Capacitation Of Ejaculated And Epididymal Bovine Sperm And Their In Vitro Fertilization Rates. *Reproduction, Fertility and Development* 24:189.

Participants:

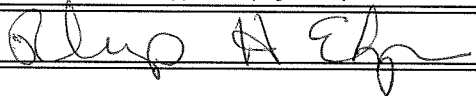
K.R. Bondioli (PI), R.A. Godke, G.T. Gentry, Jr., J. Lynn, K. Eilersten, T. Adams, M. Addison, C. Bailey, L. Coley, J. Sarmiento, and M. Stout, LSU AgCenter.

Target Audiences:

Farm Animal Producers and Reproductive Physiologists in Industry and Academia.

Project Modifications:

Nothing significant to report during this reporting period.

Approved (Signature)	Title	Date
		3-23-12