

BIOGRAPHICAL SKETCH

NAME	BERGHMAN, Luc. R.	POSITION TITLE	Assistant Professor
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	FIELD OF STUDY
University of Leuven, Belgium	M.Sc.	1982	Zoology
University of Leuven, Belgium	Ph.D.	1988	Zoology

Professional Experience

1982-1984	Assistant to the University
1984-1988	Research assistant of the Belgian National Fund for Scientific Research (N.F.W.O.)
1988-1994	Postdoctoral Fellow of the Belgian N.F.W.O.
1994-1998	Associate Professor Immunology and Neuroscience, University of Leuven, Belgium. Senior Research Associate of the Belgian N.F.W.O.
1998	Assistant Professor Poultry Science, Texas A&M University
1998	Assistant Professor Veterinary Pathobiology, Texas A&M University

Publications in the last 5 years and earlier pertinent publications

- Developmental changes in immunoreactive inhibin and FSH in plasma of chickens from hatch to sexual maturity. Vanmontfort, D., Berghman, L.R., Rombauts, L., Verhoeven, G. & Decuypere, E. (1995) *British Poultry Science* 36:779-790.
- Interactions between adenohipophyseal, hypothalamic and nasal presumptive territories during early neurulation process. Elamraoui, A., Berghman, L.R. & Dubois, P.M. (1995). *Endocrine* 3:335-343.
- Influence of corticotropin-releasing factor on the *in vitro* thyroxine and thyrotropin secretion in newly hatched fowl. Geris, K.L., Darras, V.M., Berghman, L.R. and Kühn, E.R. (1995) *Belgian Journal of Zoology* 125: 143-156.
- One-step immunoaffinity purification and partial characterization of hypophyseal growth hormone from the African catfish, *Clarias gariepinus* (Burchell). Berghman, L.R., Lescroart, O., Roelants, I., Ollevier, F., Kühn, E.R., Verhaert, P.D., De Loof, A. and Vandesande, F. (1996). *Comp. Physiol. Biochem. B* 113(4): 773-780.
- Influence of recombinant chicken prolactin on thyroid hormone metabolism in the chick embryo. Kühn, E.R., Shimada, K., Ohkubo, Vleurick, L.M., Berghman, L.R. and Darras, V.M. (1996) *General and Comparative Endocrinology* 103:349-358.
- Plasma thyroid hormone levels and iodothyronine-deiodinase activity following an acute glucocorticoid challenge in embryonic compared to posthatch chickens. Darras, V.M., Kotanen, S.P., Geris, K.L., Berghman, L.R. and Kühn, E.R. (1996). *Gen Comp Endocrinol* 104(2):203-212.
- Hormonal and nutritional influences on thyroid hormone secretion and peripheral deiodination in the chicken. Darras, V.M., Geris, K.L., Buyse, J., Berghman, L.R., Decuypere, E. and Kühn, E.R. (1996). Book of the Congress of the VI ISAE meeting in Canada.
- Evidence of a thyrotropin (TSH)-releasing activity of ovine corticotropin-releasing factor (oCRF) in the domestic fowl (*Gallus domesticus*) (1996). Geris, K.L., Kotanen, S.P., Berghman, L.R., Kühn, E.R. and Darras, V.M. *Gen. Comp. Endocrinol* 104:139-146.
- The use of intermittent lighting in broiler raising. 2. Effects on the somatotrophic and thyroid axes and on plasma testosterone levels. Kuhn, E.R., Darras, V.M., Gysemans, C., Decuypere, E., Berghman, L.R., Buyse, J. (1996). *Poult Sci* May;75(5):595-600.
- Ovarian and extra-ovarian source of immunoreactive inhibin in chicken : effects of dexamethasone. Vanmontfort, D., Room, G., Bruggeman, V., Rombauts, L., Berghman, L.R., Verhoeven, G. and Decuypere, E (1997). *General and Comparative Endocrinology*, 105:333-343
- Single-step immunoaffinity purification of the neuropeptide sericotropin using polyclonal antibodies towards the synthetic N-terminal fragment of the molecule (1997). Kodrik, D., Berghman, L. and De Loof, A. *European Journal of Entomology*. In Press.
- Unidentified factors in Jojoba meal prevent oviduct development in broiler breeder females. Vermaut, S., Onagbesan, M., Bruggeman, V., Verhoeven, G., Berghman, L., Flo, G., Cokelaere, M. and Decuypere, E. (1998). *Journal of Agricultural and Food Chemistry* 46:194-201.
- Comparative distribution of pituitary adenylate cyclase-activating polypeptide and vasoactive intestinal polypeptide immunoreactivity in the chicken forebrain. Peeters, K., Berghman, L.R., Vandesande, F. (1998). *Ann N Y Acad Sci*. May 15;839:417-419.
- An electrochemical enzyme immunoassay for chicken luteinizing hormone: extension of the detection limit by adequate control of the nonspecific adsorption. Qu, Y., Berghman, L.R., Vandesande, F. (1998). *Anal Biochem* Jun 1;259(2):167-175.

- Characterisation of chicken monocytes, macrophages and interdigitating cells by the monoclonal antibody KUL01. Mast, J., Goddeeris, B.M., Peeters, K., Vandesande, F., Berghman, L.R. (1998). *Vet Immunol Immunopathol.* Feb 27;61(2-4):343-357.
- The molecular characterization of chicken pituitary N-terminal pro-opiomelanocortin (POMC): affinity isolation of the isoforms and cloning of the POMC cDNA. Berghman, L.R., Devreese, B., Verhaert, P., Gerets, H., Arckens, L., Vanden Broeck, J., van Beeumen, J., Vaudry, H. and Vandesande, F. (1998). *Mol Cell Endocrinol* 25:119-130.
- Pituitary and Extrapituitary Action Sites of the Novel Nonpeptidyl Growth Hormone (GH) Secretagogue L-692,429 in the Chicken. Geris, K.L., Hickey, G.J., Berghman, L.R., Visser, T.J., Kuhn, E.R., Darras, V.M. (1998). *Gen Comp Endocrinol.* 111(2): 186-196.
- Concentrations of cLHRH-I and -II, pituitary and plasma gonadotropins up to point of lay in broiler breeder females of different feeding regimes. Bruggeman, V. and D'Hondt, E., Berghman, L., Onagbesan, O., Vanmontfort, D., Vandesande, F. and Decuyper, E. (1998) *Gen Comp Endocrinol* 112(2):200-209.
- Pre- and posthatch developmental changes in hypothalamic thyrotropin-releasing hormone and somatostatin concentrations and in circulating growth hormone and thyrotropin levels in the chicken. Geris, K.L., Berghman, L.R., Kuhn, E.R. and Darras, V.M. (1998). *J. Endocrinol.* 159:219-225.
- Effect of long-term food restriction on pituitary sensitivity to cLHRH-I in broiler breeder females. Bruggeman, V., Onagbesan, O.M., Vanmontfort, D., Berghman, L., Verhoeven, G. and Decuyper, E. (1998). *J. Reprod. Fertil.* 114: 267-276.
- Effects of pituitary adenylate cyclase-activating polypeptide (PACAP) on cAMP formation and growth hormone release from chicken anterior pituitary cells. Peeters K, Langouche L, Vandesande F, Darras VM, Berghman LR (1998). *Ann N Y Acad Sci* 865:471-474.
- The effect of food intake from 2 to 24 weeks of age on LHRH-I content in the median eminence and gonadotrophin levels in pituitary and plasma in female broiler breeder chickens. Bruggeman V, D'Hondt E, Berghman L, Onagbesan O, Vanmontfort D, Vandesande F, Decuyper E (1998). *Gen Comp Endocrinol.* 112(2):200-209.
- The drop in plasma thyrotropin concentrations in fasted chickens is caused by an action at the level of the hypothalamus: role of corticosterone. Geris, K., Berghman, L.R., Kuhn, E.R. and Darras, V.M. (1999). *Domest Anim Endocrinol.* 16(4):231-237.
- Prenatal development of hematopoietic and hormone-producing cells in the chicken adenohypophysis. Allaerts, W., Boonstra-Blom, A.G., Peeters, K., Janse, E.M., Berghman, L.R. and Jeurissen, S.H.M. (1999). *Gen Comp Endocrinol.* 114:213-224.
- Immunohistochemical evidence that follicle-stimulating hormone and luteinizing hormone reside in separate cells in the chicken pituitary. Proudman, J.A., Vandesande, F. and Berghman, L.R. (1999). *Biology of Reproduction* 60:1324-1328.
- Effects of timing and duration of feed restriction during rearing on reproductive characteristics in broiler breeder females. Bruggeman, V., Onagbesan, O., D'Hondt, E., Buys, N., Safi, M., Vanmontfort, D., Berghman, L., Vandesande, F. and Decuyper, E. (1999). *Poultry science* 78: 1424-1434.
- Validation of a new antiserum directed towards the synthetic c-terminus of the fos protein in avian species: immunological, physiological and behavioral evidence. D'Hondt, E., Vermeiren, J., Peeters K., Balthazart J., Tlemçani O., Ball G. F., Duffy D. L., Vandesande F. and Berghman L. (1999). *J Neurosci Methods* 91: 31-45.
- Adrenal inhibition of corticotropin-releasing hormone-induced thyrotropin release: a comparative study in pre- and posthatch chicks. Geris KL, Laheye A, Berghman LR, Kuhn ER, Darras VM (1999). *J Exp. Zool.* 284(7):776-82.
- Modulation of the growth hormone (GH)-releasing activity of thyrotropin-releasing hormone (TRH) in the chicken by its gene-related peptide preproTRH₍₁₆₀₋₁₆₉₎ (Ps4): enhanced somatostatinergic tone? Geris, K.L., Berghman, L.R., Ladram, A., Kühn, E.R., Darras, V.M. and Harvey, S. (2000). *Neuropeptides* 34(1): 51-57.
- Shield characteristics are testosterone-dependent in both male and female moorhens Eens, M., Van Duyse, E., Berghman, L. & Pinxten, R. (2000). *Hormones and Behavior* 37(2):126-134.
- The sequence and distribution of pro-opiomelanocortin (POMC) in the pituitary and the brain of the chicken (*Gallus gallus*). Gerets, H., Peeters, K., Vandesande, F. and Berghman, L.R. (2000). *Journal of Comparative Neurology* 417:250-262.
- Colocalization of arginine-vasotocin and chicken luteinizing hormone-releasing hormone-I (cLHRH-I) in the preoptic-hypothalamic region of the chicken. D'Hondt, E., Eelen, M., Berghman, L. and Vandesande, F. (2000). *Brain Research* 856(1-2):55-67.
- Immunohistochemical localization of chromogranin A in turkey and chicken pituitary gonadotrophs and somatotrophs. Proudman, J.A., Clerens, S., Van den bergh, G., Vandesande, F. and Berghman, L.R. Submitted to *Cell & Tissue Research* 11/99.
- Gerets, H. H. J., Peeters, K., Van der gucht, E., Vandesande, F. and Berghman L.R. Lipopolysaccharide stimulates the expression of pro-opiomelanocortin mRNA in chicken macrophages, as demonstrated with a new competitive polymerase chain reaction. Submitted to *Poultry Science*. 11/2000.

- Immunocytochemical evidence for the existence of a lamprey luteinizing hormone releasing hormone type III-like peptide in the chicken hypothalamus. Berghman, L.R., D'Hondt, E., Puebla, N., Dees, L., Hiney, J., Sower, S. and Vandesande, F. (2000). *British Poultry Science* 41, S56-57.
- Chicken Luteinizing Hormone-Releasing Hormone-I and -II are located in distinct fiber terminals in the median eminence of the quail: a light and electron microscope study. D'Hondt, E., Billen, J., Berghman, L.R., Bandesande, F. & Arkens, L. (2001) *Belg. J. of Zool.* 131(2):137-144.
- Choi Y, Johnson GA, Burghardt RC, Berghman LR, Hoyce MM, Taylor KM, Stewart MD, Brazer FW, Spencer TE (2001). Interferon regulatory factor two restricts expression of interferon-stimulated genes to the endometrial stroma and glandular epithelium of the ovine uterus. *Biol. Reprod.* 65(4):1038-49.
- The sequence and distribution of pro-opiomelanocortin (POMC) in the pituitary and the brain of the chicken (*Gallus gallus*) Gerets, H., Peeters, K., Vandesande, F. and Berghman, L.R. (2000). *Journal of Comparative Neurology* 417:250-262.
- In Situ detection and quantification of bursa of Fabricius cellular proliferation or apoptosis in normal or steroid-treated neonatal chicks. S. E. Higgins, L.R. Berghman, R.W. Moore, D.J. Caldwell, and B.M. Hargis. *In press. Poultry Science* 2002
- FSH- and LH-cells originate as separate cell populations and at different embryonic stages in the chicken embryo. N. Puebla-Osorio, J.A. Proudman, A.E. Compton, K.E. Clements, E. Decuypere, F. Vandesande, and L.R. Berghman *GCE in press* 4/2/2002
- Development of a homologous sandwich ELISA for chicken luteinizing hormone. Comparison with *in vitro* bioassay measurements. Berghman, L.R., Proudman, J.A., Puebla, N., Vanmontfort, D., Bruggeman, B., Darras, B.M. & Bandesande, F. *Manuscript in preparation for Comp. Biochem. Physiol.*
- Lipopolysaccharide stimulated the expression of pro-opiomelanocortin mRNA in chicken macrophages, as demonstrated with a competitive polymerase chain reaction. Gerets, H.H.J., Peeters, K., Van der gucht, E., Vandesande, F., and L.R. Berghman. *Submitted to Belg J Zool.* 7/2001.
- Ovoinhibitor in the chicken bursa of Fabricius: identification, isolation, and localization. Randle W. Moore, Luc R Berghman, Tome E. Proter, Denise Y. Caldwell, Cherie M. Oubre, Frans Vandesande, and Billy M. Hargis. *Submitted to Developmental and Comparative Immunology* 10/01.
- Effect of Bursal Anti-Steroidogenic Peptide and immunoglobulin G on neonatal chicken B-lymphocyte proliferation. Moore, R.W., Caldwell, D.Y., Berghman, L.R., Caldwell, D.J., McElroy, A.P., and Hargis, B.M. *Submitted to Comp. Biochem. Physiol.* 12/01.
- Characterization of Bursal Anti-Steroidogenic Peptide (BASP): Homology to Chicken Histone H1. R.W. Moore, T.E. Proter, D.Y. Caldwell, L.R. Berghman and B.M. Hargis. *Paper in preparation.*
- Observation and interpretation of occasional follicles with uniform high incidence of apoptotic cells in the neonatal chick bursa of Fabricius. S.E. Higgins, L.R. Berghman, R.W. Moore, D.Y. Caldwell, I. Tizard and B.M. Hargis. *Submitted to Poultry Science.* 8/2001.
- Relationship of Bursal Anti-Steroidogenic Peptide (BASP) and Histone H1. Gary Garcia, Randy W. Moore, Luc R. Berghman, and Billy M. Hargis. *Submitted to Life Sciences* 2/2002.

Grants in the last 5 years

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| 2000 | Schubot Exotic Bird Health Center: feasibility study for avian chimerism and cloning as a way of rescuing endangered bird species. \$10,000 |
| 2000 | College of Veterinary Medicine Signature Program Funding : “ <i>Enhanced Immunity through Specific Neonatal Clonal Lymphocyte Selection: A Novel Approach to Improving Disease Resistance in Chickens (and Other Vertebrate Animals?)</i> ” - \$10,000 |
| 1993-2003 | A&M Research Enhancement Programs IRI 2000 - 29-M grant: “ <i>Hormonal regulation of growth in Channel Catfish</i> ”- Co-PI – no support personnel – budget for my contribution amounts approx. \$3,000 |
| 2000-2004 | USDA Cooperative agreement Coop Agr #58-1265-0-044: “ <i>The regulation of FSH secretion in birds</i> ”- PI – \$10,000 yearly. |
| 2001-2002 | USDA NRI “ <i>Verification of safe cooking endpoints in beef and pork by multiple antigen ELISA</i> ” – co-worker – budget for my contribution amounts approx. \$28,000 |

Significant Research

The basis has been put in place to further study the immuno-neuro-endocrine network in the chicken model. This includes the immunocytochemical demonstration of typical neuroendocrine molecules (such as chromogranin A) in the heart of the humoral immune system of the chicken, which is still the best if not the only comparative model for humoral immune system ontogeny and function. Conversely, new molecules that we have discovered first in the bursa of Fabricius of the chicken are also being found in the chicken pituitary and brain. It is our hope that further characterization of the common biochemical messenger molecules in the chicken immuno-neuro-endocrine network will advance our fundamental understanding of mammalian humoral immune function.