

CURRICULUM VITAE

Leslie Ann Knapp

2023

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PERSONAL INFORMATION:

Sex: Female

Place of Birth: Glendale, California, USA

EDUCATION:

1994-1996 Postdoctoral Fellow
Wisconsin Regional Primate Research Center
University of Wisconsin, Madison

1994 Ph.D., Biological Anthropology
University of California, Los Angeles

1990 Advanced Training in Cell and Molecular Biology
Catholic University of America, Washington, D.C.

1988 M.A., Biological Anthropology
University of California, Los Angeles

1984 B.A., Anthropology
University of California, Los Angeles

PROFESSIONAL POSITIONS:

2013-present Professor of Anthropology
Department of Anthropology, University of Utah

2013-present Director, Modern Molecular Genetics Laboratory, Primate
Immunogenetics & Molecular Evolution (PRIME) Laboratory,
Department of Anthropology, University of Utah

2013-2019 Chair, Department of Anthropology, University of Utah

2010-2013 Head of Division, Biological Anthropology
Reader in Primate Genetics & Behaviour
Department of Biological Anthropology, University of Cambridge

2005-2010 University Senior Lecturer (in US, tenured Associate Professor),
Department of Biological Anthropology, University of Cambridge

2000-2005 University Lecturer (Assistant/Associate Professor), Department of
Biological Anthropology, University of Cambridge

1999-present Official Fellow and College Lecturer in Natural Sciences
Emmanuel College, University of Cambridge

1997-1999 University Assistant Lecturer (in US Assistant Professor)
Department of Biological Anthropology, University of Cambridge

1996-1997 Assistant Researcher, Wisconsin Regional Primate Research
Center, University of Wisconsin, Madison

1994-1996 Postdoctoral Fellow, Wisconsin Regional Primate Research
Center, University of Wisconsin, Madison

1992-1994 Visiting Graduate Student Researcher, Primate Field Station,
Regional Primate Research Center, University of Washington

1990-1992 Graduate Student Researcher, Department of Pathology,

1986-1990 University of California, Los Angeles
Teaching Assistant/Associate/Consultant, Department of
Anthropology, University of California, Los Angeles

AWARDS AND SCHOLARSHIPS:

2012 Visiting Professor, University of Veracruz, Center for Tropical
Research, Xalapa, Mexico
2009 Visiting Professor, University of Rennes, Department of Biological
Sciences, Rennes, France
1996 Andrew W. Mellon Foundation, Postdoctoral Research in
New Approaches to Fertility Regulation
University of Wisconsin, Madison
1994 NIH Gamete and Embryo Biology Postdoctoral Fellowship,
University of Wisconsin, Madison
1994 Department of Anthropology Travel Grant, UCLA
1993 Dr. Ursula Mandel Scholarship, UCLA
1991 National Science Foundation Dissertation Improvement
Grant ("Reproductive Success in Pigtailed Macaques:
The influence of the major histocompatibility complex")
1991 Department of Anthropology Research Grant, UCLA
1990 Sergey Polivanov Memorial Scholarship,
Catholic University of America, Washington, D.C.
1989 Distinguished Teaching Assistant Award and Fellowship, UCLA

TEACHING EXPERIENCE:

2013-present Department of Anthropology, University of Utah
1999-2013 University of Cambridge
College Lecturer in Natural Sciences, Emmanuel College
1997-2013 University of Cambridge
University Lecturer/Senior Lecturer in Biological Anthropology
1989-1991 University of California, Los Angeles
Lecturer for Campuswide Teaching Assistant Conference

SEMINARS AND INVITED LECTURES:

2017 Invited Symposium Speaker: How selection shapes major histocompatibility
complex polymorphism" *American Association of Physical Anthropology
meetings*, New Orleans, LA
2016 Plenary Speaker: The ABC's of MHC: What are major histocompatibility complex
genes and why are they relevant in the study of ecology, evolution and behavior?
Northwest Evolution, Ecology and Human Behavior Symposium. Boise, Idaho.
2015 Invited Seminars: What are major histocompatibility complex genes *and* why are
they relevant for primate health and disease resistance? and Major
histocompatibility complex genes, reproduction and behaviour in primates.
Department of Botany and Zoology, Masaryk University, Czech Republic
2013 Invited Seminar: How selection shapes primate major histocompatibility
complex (MHC) polymorphism. Department of Biology, University of
Alabama, Birmingham

- 2013 Invited Seminar: Genetics and Individual Identity. Department of Anthropology, University College London
- 2013 What are major histocompatibility complex genes and why are they relevant to studies of primate behaviour? Italian Primatological Association Congress, Asti, Italy.
- 2012 Visiting Professor: Conservation Genetics. University of Veracruz, Mexico
- 2011 Academic Guest and Seminar Speaker: Truth in Advertising: MHC genes, signals and mate choice in primates. University of New Mexico, Program in Interdisciplinary Biological and Biomedical Sciences
- 2011 Plenary Speaker: MHC & mate choice in primates: unresolved controversies and recent discoveries. 12th Conference of the Gesellschaft für Primatology, The Netherlands
- 2010 Plenary Speaker: Learning from Primates: Group Behaviour and Cooperation. 2nd Annual Meeting of the Human Dimension of Risk. Judge Institute, University of Cambridge, UK.
- 2010 Plenary Lecture: What are major histocompatibility complex genes and why are they relevant in the study of ecology, evolution and behaviour? Encuentros 2010, International Conference of Chilean Researchers, University of Cambridge, UK
- 2009 Invited Lecture: MHC genes and their influence on behavior in primates and others animals. Latin American Ethology Conference, Bonito, Brazil.
- 2008 Invited Lecture: Complex Systems in Anthropology. Cambridge Complex Systems Consortium. University of Cambridge.
- 2007 Invited Lecture: Signals and selection: the role of MHC genes in primate mate choice. German Primate Centre, Goettingen, Germany.
- 2006 Invited Lecture: Major histocompatibility complex (MHC) gene diversity: Implications for primate conservation. Primate Society of Great Britain Winter Conference, Cambridge, UK
- 2006 Invited Lecture: The Role of MHC Genes in Disease Resistance, Kin Recognition and Mate Attraction. Wenner Gren Conference: Molecular Primatology Prospects and Progress. New York University, USA
- 2004 Invited Seminar: The ABCs of MHC. Centre International de Recherches Medicales, Franceville, Gabon
- 2004 Invited Seminar: The ABCs of MHC. Department of Anthropology, University of Durham, United Kingdom

- 2001 Invited Seminar: Characterisation of class II MHC genes in small isolated populations of primates. Anthropologisches Institut, University of Zurich, Switzerland
- 2001 Invited Seminar: MHC, reproduction and behaviour in primates. Department of Biological Sciences, University of Surrey, Roehampton, UK
- 2000 Invited Seminar: What do MHC genes tell us about reproduction and behaviour in primates? Anthony Nolan Research Institute, The Royal Free Hospital, London, UK
- 1999 Invited Seminar: MHC Genes and Reproduction in Macaques. Department of Medical Genetics, University of Manchester, Manchester, UK
- 1998 Invited Seminar: The Evolution of MHC Genes in Rhesus Macaques. Institute of Biological Anthropology, University of Oxford, Oxford, UK
- 1998 Invited Seminar: MHC Gene Diversity and Reproduction in Macaques. Institute of Zoology, London Zoological Society, Regent's Park, London, UK
- 1997 Invited Seminar: Immunogenetics and Fertility in Macaques. Department of Microbiology and Immunology, Chicago Medical School, IL
- 1996 Invited Plenary Lecture: MHC Compatibility and Reproductive Outcome in Nonhuman Primates. 16th annual meeting of the American Society of Reproductive Immunologists, Knoxville, TN

PUBLICATIONS (>100 papers in refereed journals [>3900 citations]):

Torosin, NS, H Argibay, TH Webster, PS Cornel and **LA Knapp** (2020) Comparing the selective landscape of TLR7 and TLR8 across primates reveals unique sites under positive selection in *Alouatta*. *Molecular Phylogenetics and Evolution*, 152: 106920.

Torosin, NS, TH Webster, H Argibay, H Ferreyra, M Uhart, I Agostini and **LA Knapp** (2020) Positively selected variants in functionally important regions of TLR7 in *Alouatta guariba clamitans* with yellow fever virus exposure in Northern Argentina. *American Journal of Physical Anthropology*, 173(1): 50-60.

Briceno, C, D Gonzalez-Acuna, JE Jimenez, JE, ML Bornscheuer and **LA Knapp** (2020) Ear mites, *Otodectes cynotis*, on wild foxes (*Pseudalopex spp.*) in Chile. *Journal of Wildlife Diseases*, 56(1):105-112.

Fox, M, C Berzuini, **LA Knapp** and LM Glynn (2018) Women's pregnancy life history and Alzheimer's risk: Can immunoregulation explain the link? *American Journal of Alzheimer's Disease & Other Dementias*, 33 (8):516-526.

Setchell, JM SA Richards, KM Abbott and LA Knapp (2016) Mate-guarding by male mandrills (*Mandrillus sphinx*) is associated with female MHC genotype. *Behavioral Ecology*, 27 (6): 1756-1766.

Dunn, J.C., L.B. Halenar, J. Cristobal-Azkarate, D. Reby, D. Sykes, S. Degg, W. Tecumseh Fitch and **L.A. Knapp** (2015) Evolutionary Trade-Off between Vocal Tract and Testes Dimensions in Howler Monkeys. *Current Biology*, 25(21): 2839-2844.

Setchell J.M., T. Smith and **L.A. Knapp** (2015) Androgens in a female primate: Relationships with reproductive status, age, dominance rank, fetal sex and secondary sexual color. *Physiology and Behavior*, 147(1):245-254.

Badhan, A., C.A. Eichstaedt, N. Almond, **L.A. Knapp** and N.J. Rose (2015) Analysis of full-length mitochondrial DNA D-loop sequences from *Macaca fascicularis* of different geographical origin reveals novel haplotypes. *Journal of Medical Primatology*, 44(3):125-136.

Setchell, J.M., S. Vaglio, K.M. Abbott, J. and **L.A. Knapp** (2014) Odour signals sex, rank and genotype in an Old World monkey. Conference Paper: *Behaviour Meets Biochemistry: Animals Making Sense of Molecules Making Scents* 2014, Volume: 5

Sick C., A.J. Carter, H.H. Marshall, **L.A. Knapp**, T. Dabelsteen and G. Cowlishaw G. (2014). Evidence for varying social strategies across the day in chacma baboons. *Biology Letters*, 10 (7), 2014:0249.

Dunn, J.C., A. Shedden-Gonzalez, J. Cristobal-Azkarate, L. CCortes-Ortiz, E. Rodriguez-Luna and **L.A. Knapp** (2014) Limited genetic diversity in the critically endangered howler monkey (*Alouatta palliata Mexicana*) in the Selva Zoque, Mexico. *Primates*, 55 (2), 155-160.

Fox, M., C. Berzuini and **L.A. Knapp** (2013) Cumulative estrogen exposure, number of menstrual cycles and Alzheimer's risk in a cohort of British women. *Psychoneuroendocrinology*, 38(12):2973-2982.

Fox, M., C. Berzuini and **L.A. Knapp** (2013) Maternal breastfeeding history and Alzheimer's Disease risk. *Journal of Alzheimer's Disease*, 37(4):809-821.

Setchell, J.M., K.M. Abbott, J.P. Gonzalez and **L.A. Knapp** (2013) Testing for post-copulatory selection in a semi-free-ranging primate population. *American Journal of Primatology*, 75(10):1021-1031.

Piel, A.K., F.A., Stewart, L. Pintea, Y., Li, M.A., Ramirez, D.E. Loy, P.A., Crystal, G.H. Hearn, **L.A. Knapp**, P.M. Sharp and B. H. Hahn (2013) The Malagarasi River does not form an absolute barrier to chimpanzee movement in Western Tanzania. *PLoS One*, DOI: 10.1371/journal.pone.0058965.

Fox, M., **L.A. Knapp**, P.W. Andrews and C.L. Fincher (2013) Hygiene and the world distribution of Alzheimer's disease: Epidemiological evidence for a relationship between microbial environment and age-adjusted disease burden. *Evolution, Medicine and Public Health*, 2013(1): 173-186.

Huchard E., M.J.E. Charpentier, H. Marshall, A. King, **L.A Knapp** and G. Cowlshaw (2013) Paternal effects on access to resources in a promiscuous primate society. *Behavioral Ecology*, 7(1):229-236.

Briceno, C, **L.A. Knapp**. A. Silva, J Paredes, I Avendano, Aliro Vargas, J Sotomayor and A.R. Vila (2013) Detecting endangered huemul deer population increase following removal of cattle and poaching in periglacial habitats of coastal Patagonia, Chile. *Oryx*, 47(02):273-279.

Koops, K, W.C. McGrew, T Matsuzawa and **L.A. Knapp** (2012) Terrestrial nest-building by wild chimpanzees (*Pan troglodytes*): implications for the tree-to-ground sleep transition in early hominins. *American Journal of Physical Anthropology*, 148(3):351-361.

Bernstein, R.M., J.M. Setchell, D. Verrier and **L.A. Knapp** (2012) Maternal effects and the endocrine regulation of mandrill growth. *American Journal of Primatology*, 74(10):890-900.

Fox, M., J Johow and **L.A. Knapp** (2011) The selfish grandma gene: the roles of the X-chromosome and paternity uncertainty in the evolution of Grandmothering behavior and longevity. *International Journal of Evolutionary Biology*, doi:10.4061/2011/165919 .

Johow, J, M Fox, **L.A.Knapp** and E. Voland (2011) The presence of a paternal grandmother lengthens interbirth interval following the birth of a granddaughter in Krummhörn (18th and 19th centuries) *Human Evolution and Behavior*, 32(5):315-325.

Setchell, J.M., S. Vaglio, K.M. Abbott, J. Moggi-Cecchi, F. Boscaro, G. Pieraccini and **L.A. Knapp** (2011) Odour signals major histocompatibility complex genotype in an Old World monkey. *Proceedings of the Royal Society, Biological Sciences*, 278(1703):274-280.

Cammen K., J.I. Hoffman, **L.A. Knapp**, J. Harwood and W. Amos (2011) Geographic variation of the major histocompatibility complex in Eastern Atlantic grey seals (*Halichoerus grypus*). *Molecular Ecology*, 20(4):740-752.

Setchell J.M., T. Smith, E.J. Wickings and **L.A. Knapp** (2010) Stress, social behaviour, and secondary sexual traits in a male primate. *Hormones & Behavior*, 58(5):720-728.

Huchard E, **L.A. Knapp**, J. Wang, M. Raymond and G. Cowlshaw (2010) MHC, mate choice and heterozygote advantage in a wild social primate. *Molecular Ecology*, 19(12): 2545-2561.

Célérier A., E. Huchard, A. Alvergne, D. Féjan, F. Plard, G. Cowlshaw, M. Raymond, **L.A Knapp** and F. Bonadonna (2010) Detective mice assess relatedness in baboons using olfactory cues. *Journal of Experimental Biology*, 213(Pt 9):1399-1405.

Huchard E., M. Raymond, J. Benavides, H. Marshall, **L.A. Knapp** and G. Cowlshaw (2010). A female signal reflects MHC genotype in a social primate. *BMC Evolutionary Biology*, Apr 7;10:96.

Huchard E., A. Alvergne, D. Féjan, F., **L.A Knapp** G. Cowlshaw and M. Raymond (2010) More than friends? Behavioural and genetic aspects of heterosexual associations in wild chacma baboons. *Behavioral Ecology and Sociobiology*, 64(5): 769-781.

Wang, J., P Brekke, E. Huchard, **LA Knapp** and G Cowlshaw (2010) Estimation of parameters of inbreeding and genetic drift in populations with overlapping generations. *Evolution*.64(6):1704-1718.

Fox, M, R Sear, J Beise, G Ragsdale, E Volland and **L.A. Knapp** (2010) Grandma Plays Favourites: X Chromosome Relatedness and Sex Specific Childhood Mortality. *Proceedings of the Royal Society, Biological Sciences*, 277(1681):567-573.

Setchell, J.M, S Vaglio, J Moggi-Cecchi, F Boscaro, L Calamai and **LA Knapp** (2010) Chemical composition of scent-gland secretions in an Old World monkey (*Mandrillus sphinx*): influence of sex, male status, and individual identity. *Chemical Senses*, 35(3):205-220.

Setchell, J.M., M.J.E. Charpentier, K.M. Abbott, E.J. Wickings and **L.A. Knapp**. (2010) Opposites attract: MHC-based mate choice in an Old World primate. *Journal of Evolutionary Biology* (1):136-148.

Setchell, J.M., M.J.E. Charpentier, K.M. Abbott, E.J. Wickings and **L.A. Knapp**. (2009) Is brightest best? Testing the Hamilton-Zuk hypothesis in mandrills. *International Journal of Primatology*, 30(6):825-844.

Huchard, E., J. Benavides, J. Setchell, M. Charpentier, A. Alvergne, **L.A. Knapp**, G. Cowlshaw and M. Raymond. (2009) Studying shape in sexual signals: the case of primate sexual swellings. *Behavioral Ecology and Sociobiology*, 63(8):1231-1242.

Majolo, B., R. Ventura, N.F. Koyama, S.M. Hardie, B.M. Jones, **L.A. Knapp** and G. Schino. (2009) Analysing the effects of group size and food competition on Japanese macaque social relationships. *Behaviour*, 146(1):113-137.

Huchard, E., A. Courtiol, J. Benavides, **L.A. Knapp**, M. Raymond and G. Cowlshaw. (2009) Can fertility signals lead to quality signals? Insights from the evolution of primate sexual swellings. *Proceedings of the Royal Society, Biological Sciences*, 76(1663):1889-1897.

Mee, ET, A. Badhan, J.A. Karl, R.W. Wiseman, K. Cutler, **L.A. Knapp**, N. Almond, D.H. O'Connor and N.J. Rose (2009) MHC haplotype frequencies in a UK breeding colony of Mauritian cynomolgus macaques mirror those found in a distinct population from the same geographic origin. *Journal of Medical Primatology*, 38(1):1-14.

Huchard, E., Weill, M., Cowlshaw, G, Raymond, M and **L. A. Knapp** (2008) Polymorphism, haplotype composition and selection in the *Mhc-DRB* of wild baboons. *Immunogenetics*, 60(10):585-598.

Vizuite-Forster, M., A.P. Thomas and **L.A. Knapp** (2008) Differential amplification profiles from fresh and archived DNA samples. *Progress in Forensic Genetics 12: Proceedings of the 22nd Congress of the International Society for Forensic Genetics*, 1(1): 451-453.

Setchell, J.M., T.E. Smith, E.J. Wickings and **L.A. Knapp**. (2008) Factors affecting fecal glucocorticoid levels in semi-free ranging female mandrills. *American Journal of Primatology*, 70(11):1023-1032.

Setchell, J.M., T.E. Smith, E.J. Wickings and **L.A. Knapp**. (2008) Social correlates of testosterone and ornamentation in male mandrills. *Hormones and Behavior*, 54(3):365-372.

Leigh, S.R., J.M. Setchell, **L.A. Knapp** and E.J. Wickings (2008). Growing long in the tooth: Canine tooth size and fitness in male mandrills. *Journal of Human Evolution*, 55(1):75-85.

Setchell J.M., I. Bedjabaga, B. Goossens, P. Reed, E.J. Wickings and **L.A. Knapp** (2007) Parasite prevalence, diversity and parasite load in a semi-free-ranging colony of mandrills. *International Journal of Primatology*.28:1345-1362.

Setchell J.M., P. Tshipamba, O. Bourry, P. Roquet, E.J. Wickings and **L.A. Knapp**. (2006) Haematology of a semi-free-ranging colony of mandrills (*Mandrillus sphinx*). *International Journal of Primatology*, 27(6):1709-1729.

Setchell, J.M., M.J.E. Charpentier, I. Bedjabaga, P. Reed, E.J. Wickings and **L.A. Knapp** (2006) Secondary sexual characters and female quality in primates *Behavioral Ecology and Sociobiology*, 61(2):305-315.

Setchell, J.M., E.J. Wickings and **L.A. Knapp** (2006) Life history in male mandrills (*Mandrillus sphinx*): Physical development, dominance rank and group association. *American Journal of Physical Anthropology*, 131(4):498-510.

Huchard, E., G. Cowlshaw, M. Raymond, M. Weill and **L.A. Knapp** (2006) Molecular study of *Mhc-DRB* in wild chacma baboons reveals high variability and evidence for trans-species inheritance. *Immunogenetics*, 58(10):805-816.

Abbott, K.M., E.J. Wickings and **L.A. Knapp** (2006) High levels of diversity characterise mandrill (*Mandrillus sphinx*) *Mhc-DRB* sequences. *Immunogenetics*, 58(8):628-640.

Setchell, J.M., E.J. Wickings and **L.A. Knapp** (2006) Signal content of red facial coloration in female mandrills (*Mandrillus sphinx*). *Proceedings of the Royal Society, Biological Sciences*, 273(1599):2395-2400.

Knapp, L.A. Robson, J. and J.S. Waterhouse (2006) Olfactory signals and the MHC: A review and a case study in *Lemur catta*. *American Journal of Primatology*, 68(6):568-584.

Roy Choudhury, S. and **L.A. Knapp** (2006) A review of the ethical guidelines on conducting non-therapeutic genetic studies in developing countries. *European Journal of Human Genetics*, 14:9-16.

Setchell, J.M., **L.A. Knapp** and E.J. Wickings (2006) Violent coalitionary attack by female mandrills. *American Journal of Primatology* 68(4):411-418.

Charpentier M., J.M. Setchell, F. Prugnoll, **L.A. Knapp**, E.J. Wickings, P. Peignot and M.

Hossaert-McKey M (2005) Genetic diversity and reproductive success in mandrills (*Mandrillus sphinx*). *Proceedings of the National Academy of Sciences, USA* 102(46):16723-16728.

Knapp, L.A. (2005) Denaturing gradient gel electrophoresis (DGGE) and its use in detection of MHC polymorphism. *Tissue Antigens* 65(3):211-219.

Knapp, L.A. (2005) The ABCs of MHC. *Evolutionary Anthropology* 14 (1): 28-37.

Middleton, S.A., G. Anzenberger and **L.A. Knapp** (2004) Denaturing gradient gel electrophoresis (DGGE) screening of clones prior to sequencing. *Molecular Ecology Notes*, 4:776-778.

Middleton, S.A., G. Anzenberger and **L.A. Knapp** (2004) Identification of *MHC-DRB* alleles in New World monkeys using PCR, DGGE and direct sequencing. *Immunogenetics*, 55(11):785-790.

L.A. Knapp (2002) Evolution and immunology. *Evolutionary Anthropology*, 11:140-144.

Roy-Choudhury, S. and **L.A. Knapp** (2001) Human Reproductive Failure I: Immunological Factors. *Human Reproduction, Update*, 7(2):113-134.

Roy-Choudhury, S. and **L.A. Knapp** (2001) Human Reproductive Failure II: Immunogenetic and Interacting Factors *Human Reproduction, Update*, 7(2):135-160.

Evans, D.T., **L.A. Knapp**, P. Jing, V.S. Hinshaw and D.I. Watkins (1999) Three different MHC class I molecules bind the same CTL epitope of the influenza virus in a primate species with limited MHC class I diversity. *Journal of Immunology*, 162(7):3970-3977.

Evans, D.T., **L.A. Knapp**, P. Jing, J.L. Mitchen, M. Dykhuizen, D.C. Montefiori, C.D. Pauza and D.I. Watkins (1999) Rapid and slow progressors differ by a single MHC class I haplotype in a family of MHC-defined rhesus macaques infected with SIV. *Immunology Letters*, 66(1-3):53-59.

Lobashevsky, A., J.P. Smith, J. Kasten-Jolly, **L. Knapp**, R.E. Bontrop, D. Watkins and J. Thomas (1999) Identification of DRB haplotypes in rhesus monkeys using PCR-SSP amplification. *Tissue Antigens*, 54(3):254-263.

Grob, B., **L.A. Knapp**, G. Anzenberger and R.D. Martin (1998) The major histocompatibility complex and mate choice: inbreeding avoidance or selection of good genes? *Clinical and Experimental Immunology*, 15:119-129.

Knapp, L.A., L.F. Cadavid and D.I. Watkins (1998) The *MHC-E* locus is the most well-conserved of all known primate class I histocompatibility genes. *Journal of Immunology*, 160:189-196.

Aldridge, B.M., S. M. McGuirk, R.J. Clark, **L.A. Knapp**, D.I. Watkins and D.P. Lunn (1998) Denaturing gradient gel electrophoresis: a rapid method for differentiating *BoLA-DRB3* alleles. *Animal Genetics*, 29:389-394.

Knapp, L.A., E. Lehmann, M.S. Piekarczyk, J.A. Urvater and D.I. Watkins (1997) A high frequency of *Mamu-A*01* in the rhesus macaque detected by PCR-SSP and direct sequencing. *Tissue Antigens*, 50:657-661 [189].

Knapp, L.A., E. Lehmann, L. Hennes, M.E. Eberle and D.I. Watkins (1997) High-resolution *HLA-DRB* typing using DGGE and direct sequencing. *Tissue Antigens*, 50:170-177.

Knapp, L.A., L.F. Cadavid, M.E. Eberle, S.J. Knechtle, R.E. Bontrop and D.I. Watkins (1997) Identification of novel *Mamu-DRB* alleles using DGGE and direct sequencing. *Immunogenetics*, 45:171-179.

Eberle, M., **L.A. Knapp**, K.K. Iwanaga, M.J. Domanico, K. Aiyer and D.I. Watkins (1997) *HLA-B* Typing by allele separation followed by direct sequencing. *Tissue Antigens*, 49: 365-375.

Knechtle, S.J., D. Vargo, J. Fechner, Y. Zhai, J. Wang, M.J. Hanaway, J. Scharff, H. Hu, **L. Knapp**, D. Watkins and D.M. Neville, Jr. (1997) FN-18-CRM19 immunotoxin promotes tolerance in primate renal allografts. *Transplantation*, 63 (1):1-6.

Knapp, L.A., J.C. Ha and G.P. Sackett (1996) Parental MHC antigen sharing and pregnancy wastage in captive pigtailed macaques. *Journal of Reproductive Immunology*, 32:73-78.

Boysen, J.E., C. Shufflebotham, L.F. Cadavid, J.A. Urvater, **L.A. Knapp**, A.L. Hughes and D.I. Watkins (1996) The MHC class I genes of the rhesus monkey: different evolutionary histories of MHC class I and II genes in primates. *Journal of Immunology*, 156:4656-4665.

Watkins, D.I., C. Shufflebotham, L.F. Cadavid, J.A. Urvater, **L.A. Knapp**, A.L. Hughes and J.E. Boyson (1996) The MHC class I genes of the rhesus monkey: different evolutionary histories of MHC class I and II genes in primates. *Proceedings of the 12th International Histocompatibility Workshop and Conference*, Vol. II: 259-261.

Invited Comments:

Knapp, L.A. (2018) Highlights in Public Anthropology, Physical Anthropology. R. Borofsky (Ed) *Anthropology and the Media: Learning from How Others See Us*. Honolulu: Center for a Public Anthropology

Knapp, L.A. (2007) Selection on MHC? A matter of form over function. *Heredity*,99(3):241-242.

Knapp, L.A. (2005) Comment: Facts, faeces and setting standards for the study of Mhc genes using non-invasive samples *Molecular Ecology* 14(5):1597-1599.

Book Chapters:

Knapp, L.A. (2018) Behavior: Mate Choice and Sexual Selection. M.K. Skinner (ed) *Encyclopedia of Reproduction* (2nd Ed). The Netherlands: Elsevier

Knapp, L.A. and N.S. Torosin (2018) The Primate Immune System: A survey of the innate and acquired immune systems. D. O'Rourke (Ed) *Companion to Anthropological Genetics*. New York: Wiley

Knapp, L.A. (2018) Genomes. W Trevathan (Ed) *International Encyclopedia of Biological Anthropology*. New York: Wiley

Knapp, L.A. (2018) Heterozygosity. W Trevathan (Ed) *International Encyclopedia of Biological Anthropology*. New York: Wiley

Knapp, L.A. (2013) Molecular genetic tools for evaluating the consequences of habitat fragmentation. L. Marsh (ed) *Primates in Fragments II*. New York: Springer, pp.389-398.

Knapp, L.A. and S.H.S. Innocent (2012) Molecules and Mating: Positive Selection and Reproductive Behavior in Primates. C Lopez-Larrea (ed.) *Ancient Origin of Self Recognition Systems in Nature*. Austin, TX: Landes Bioscience, pp.218-236.

Jones, B.M. and **L.A. Knapp** (2009) Temperature Gradient Gel Electrophoresis. A. Komar (ed.): *Methods in Molecular Biology: Single Nucleotide Polymorphisms Vol 2*, pp.153-165. Humana Press. DOI:10.1007/978-1-60327-411-1.

Knapp, L.A. (2009) Denaturing Gradient Gel Electrophoresis. A. Komar (ed.): *Methods in Molecular Biology: Single Nucleotide Polymorphisms Vol 2*, pp.137-151. Humana Press. DOI: 10.1007/978-1-60327-411-1-8.

Text:

Knapp, L.A. (2004) *Methods and Theory in Molecular Anthropology*. Thomson/Wadsworth.

Ph.D. Thesis:

Knapp, L.A. (1994) *Reproductive Success in Pigtailed Macaques (Macaca nemestrina): The Influence of the Major Histocompatibility Complex*. Ph.D. Dissertation, University of California, Los Angeles [1].

RESEARCH PROJECTS AND GRANTS:

Collaborative Research: The Ecological Basis of Hunting and Meat Sharing in Female Savannah Chimpanzees. **2021-present, P.I. and** Collaborator with S Lindshield (Purdue), J. Pruett (Texas State), E. Flaherty (Purdue) and F Zhu (Purdue).

Population genetics of chimpanzees in Mali. **2020-present, PI**, Funded by RSK Group, Chester, U.K.

Population genetics of chimpanzees in Senegal. **2018-present, Collaborator** with J Pruett (Texas State), S Lindshield (Purdue) Funded by Resolute Mining.

Are emerging infectious disease determinant of socially structured population evolution: The case of Ebola-Gorilla system **2013-2017, Collaborator** with N. Menard and P LeGouar: ANR, France.

A comparative study of human and howler monkey Toll-Like Receptor 7 under the selective pressure of yellow fever virus. **2015-2016; PI**: University of Utah.

The Ugalla Primate Project **2011-2014, Collaborator** with B Hahn, A. Piel, F. Stewart: Arcus and The Nature Conservancy.

Migrations and Relatedness: Behavioural Strategies of Howler Monkeys in Fragmented Habitats **2011-2014, Collaborator** with : Spanish Ministry of Science

Molecular phylogenetics and reproductive success in Bornean orangutans. **2010-2012, PI:** ARCUS & North England Zoological Society.

Molecular phylogenetics of Howler monkeys: Resolving taxonomic uncertainties and redefining conservation priorities. **2010-2012, PI** Isaac Newton Trust.

Genetic diversity in wild chacma baboons. **2006-present, Collaborator** with G. Cowlshaw, Institute of Zoology funded research.

Evaluation of the distribution, population size, and vulnerability of threatened species (jaguar, tapir, primates, bats and birds) to determine areas and strategies of conservation priority in the region of Uxpanapa, Veracruz, Mexico. **2009-2012, Collaborator** with C. Mac Swiney González Centro de Technology (CONACYT) Veracruz, Mexico

Genetic diversity and population structure in Nigerian chimpanzees. **2009-present, coPI** with V Sommer, North England Zoological Society.

The Red-faced Uacari. **2009-2010, PI.** British Council (Darwin Networks).

Complexity systems in Anthropology (Studentship plus research funds). **2009-2010, PI.** Lockheed Martin, USA.

Pilot study on the mammal fauna of the State of Roraima, the Far North of the Brazilian Amazon: Diversity, Abundance, and Conservation Genetics. Brazilian National Research Council – CNPq. **2008-2010, Co-PI** with PI: Professor A. R. Mendes Pontes and the Federal University of Pernambuco, Brazil.

Nuclear integrations of mitochondrial DNA in great apes. **2006-2009, Collaborator** with NM Anthony and M. Jensen-Seaman, National Institutes of Health (USA).

Molecular genetics and immunology for biodiversity conservation in Chile. 2005-2006, PI. Darwin Initiative.

Does bright colour in male mandrills advertise good genes to females? 2003-2007, PI. Co-PI: E.J. Wickings, Centre International de Recherches Medicales, Franceville, Gabon Leverhulme Trust.

Behavioral and genetic studies of wild chimpanzees in the Budongo Forest, Uganda. 2002-2007, Co-PI. National Geographic Society.

MHC, diversity in chimpanzees: Implications for health, reproduction and survival. 2002-2005, PI. The Leakey Foundation.

Olfactory signals, relatedness and genetic diversity in Ring-tailed Lemurs (*Lemur catta*)

1999-2004, P.I. Natural Environmental Research Council (NERC).

Population Assessment and Monitoring: Incorporating Genetic Technologies to Support Viable Populations of Mountain Gorillas and Chimpanzees. 2001-2003, Co-PI with S. Lawrance, Otterbein College, Ohio, O. Ryder, Center For Reproduction of Endangered Species, California and J. Hacia, University of Southern California. U.S. Fish and Wildlife Division, Great Ape Conservation Fund.

Immunogenetic, endocrinological and ethological aspects of reproductive behaviour in small New World monkeys. 1999-2002, Collaborator with G. Anzenberger, University of Zurich, Swiss National Science Foundation and A.H. Schultz Foundation.

Class II MHC genotyping of mountain and captive Western Lowland Gorillas. 2000-2001, Co-PI with S. Lawrance, Otterbein College, Ohio and O. Ryder, Center For Reproduction of Endangered Species, California. Morris Animal Foundation, U.S.

Re-evaluating the use of 'racialised' categories in human genetics and biomedical research. 1999-2001, Co-PI with G.T.H. Ellison, Social Science Research Unit, Institute of Education, London. Wellcome Trust.

Updating molecular genetic research in Zoology and Biological Anthropology. Royal Society/Wolfson Laboratory Refurbishment Scheme. 1999-2001, Co-PI with W. Amos, Department of Zoology, Cambridge. Royal Society.

The Influence of Genome Homozygosity upon the Reproductive Outcome of a Closely Related Population, 1999-2002, Commonwealth Studentship from the British Council/Association of Commonwealth Universities.

MHC diversity in wild prosimians, Collaborator with A. Dixon, Center for Reproduction of Endangered Species (CRES), 1998-2001, Medical Research Council and Sub-Dept of Animal Behaviour.

Paternity, MHC similarity and reproductive success in rhesus macaques
Collaborator with A. Dixon, Zoology, CRES and R.D. Martin, University of Zurich
1998-2001, University of Zurich.

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