

CURRICULUM VITAE

Vinod Kumar

Father's name: (Late) Shri G. P. Dubey

BORN: 14 January 1956, Pratapgarh (U.P.)

EDUCATION: M. Sc. (Zoology); Ph. D. (Zoology, Banaras Hindu University; 1981)

CURRENT POSITION AND ADDRESS:

Professor

Principal Investigator and Nodal PI, Indo-US Center for Biological Timing

Department of Zoology

University of Delhi

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ACADEMIC POSITIONS HELD

Jan. 1983 – Dec. 1995: Lecturer in Zoology (Gorakhpur Univ. college, Jiwaji University, Meerut University and the University of Lucknow).

Jan. 1996 – Dec. 1999: Reader in Zoology, University of Lucknow, Lucknow.

Jan 2000 – April 2009: Professor of Zoology, University of Lucknow, Lucknow

April 2009 – Contd. Professor of Zoology, University of Delhi, Delhi

TEACHING AND RESEARCH EXPERIENCE

Post-doctoral research experience: ~35 years

Teaching experience: ~33 years

AREA OF RESEARCH:

Biological Clocks, Photoperiodism and Seasonality; Neuroendocrinology

AWARDS, HONOURS:

2015: Invited speaker at the Cold Spring Harbor Symposium on Biological Rhythms, China

2015 Chair, Comparative Clocks, EBRS/ WCC Chronobiology

2014 Nodal Principal Investigator, IndoUS Center for Biological Timing.

2012 Co-chair, Session on Photoperiodism, 10th ISAE, Gifu, Japan, June.

2010-2015 Associate member, Integrative and Comparative Biology, USA.

2010 Corresponding member, German Ornithological Society

2010 Member, Indian representative, International Ornithologist's Union

2010 Member, Board of International Society for Chronobiology

2010 Platinum Jubilee Lecture Award, ISCA, SRM University, Chennai

2010 Co-chair, Symposium on Biological Clocks in Birds, IOC, Brazil, August 2010.

2008 Vijay – Usha Sodha Scientific Research Prize, University of Lucknow.

2008 Chair, Session on Biological Clocks and Seasonal Reproduction 4th ICPB, Kenya

2008 Faculty, Multinational School in Chronobiology, Raipur, India

2008 Co-chair, Session on Biorhythms, 9th ISAE, Leuven, Belgium.

2007 June-July: JSPS Senior Visiting Fellow, Nagoya University, Japan

2007 Member, Editorial Board, General and Comparative Endocrinology (USA/UK)

2007-14 Member and Faculty SERC School in Neuroscience

2007-11 Member and Faculty SERC School of Herpetology

2006 P. Govindarajulu Gold medal from the Soc. of Reprod. Biology and Comp. Endo., India.

2006 Chair, plenary lecture 24th Int. ornithological Congress, Hamburg, Germany

2006 Principal Investigator, Center for Excellence in Biological Rhythm Research

2005 February: Visitor, Max Planck Institute for Ornithology, Andechs, Germany.

2004-10 Member, Program Advisory Committee, Animal Sciences, DST, N. Delhi
2004-12 Member, Executive Committee, Intl Society of Avian Endocrinology.
2004 Co-Chair, session on Melatonin, clock genes and seasonality, Int. Avian Endoc. Arizona.
2003 Jan - **2004** August: **Visiting Professor**, Dept. of Biology, Texas A & M University, USA.
2002 May - June: Visiting Fellow. MaxPlanck Inst. for Ornithology, Germany.
2002-14 Faculty, SERC/ SRRB Schools of Chronobiology II: Clocks, Rhythms and Behaviour
2001 Fellowship in Reproduction and Endocrinology (FRE).
2001 June - August: **Visiting Fellow**. MaxPlanck Inst. for Ornithology, Germany.
2000 Young Investigator Award, Gordon Research Conference in Pineal Cell Biology (Oxford, UK).
2000 May - August: **Visiting Fellow**. MaxPlanck Inst. for Ornithology, Germany.
1999 Lecturer, Erasmus School of Chronobiology, Ferrara, Italy.
1999 May - August: **Visiting Fellow**. MaxPlanck Inst. for Ornithology, Germany.
1997 March - **1998** February: **Postdoctoral Fellow**. Max Planck Institute for Ornithology, Germany.
1995 March - **1996** March: **CIDA-NSERC Associate**. Dalhousie University, Halifax, Canada.
1992 March - **1993** March: **European Community Postdoctoral Fellow**, Edinburgh, U.K.
1991 Feb - December: **INSA - The Royal Society UK Exchange Fellow**. Bristol, UK.
1986 Young Scientist Award from Indian Science Congress Association.
1985 Fellow, Zoological Society of India

MEMBERSHIP OF SCIENTIFIC SOCIETIES HELD:

Member, International Society of Chronobiology
 Regular member, Society for Research in Biological Rhythms (SRBR), USA
 Life member, Indian Society for Chronobiology
 Life member, Indian Society for General and Comparative Endocrinology
 Life member, Society for Reproductive Biology and Comparative Endocrinology
 Life member, The Ethological Society of India
 Life member, Zoological Society of India
 Life member, Indian Science Congress Association

LECTURES DELIVERED:

ABROAD

2015 Cold Spring Harbor Asia Symposium on Biological Rhythms, China
2015 EBRs/ WCC Chronobiology conference, Manchester
2015 Neuropeptides and Neurotransmitters: Role of Physiology and Pathophysiology, Bhubaneswar, India
2014 International Congress on Ornithology, Japan
2014 International Congress on Chronobiology, Romania
2012 International Symposium on Avian Endocrinology, Japan
2010 The John Hopkins University, USA
2010 University of Kentucky, Kentucky, USA
2010 Alabama State University, Alabama, USA
2008 IV Intl, Conference in Africa for Comparative Physiology & Biochemistry, Kenya
2007 Nogyo University, Japan
2007 Waseda University, Japan
2007 Tokyo University, Japan
2006 International Ornithological Congress, Hamburg, Germany
2005 Max Planck Institute for Ornithology, Andechs, Germany March.
2005 Dept. of Func. Genomics & Bioregulation, Inst. Animal Sci. Mar., Neustadt, Germany
2005 Conference on Optimality in Bird Migration, Wilhelmshaven, Germany.
2004 International Symposium of Avian Endocrinology, Arizona, USA, June.
2004 Texas A& M University (USA), Department of Biology, Seminar series
2000 Gordon Research Conference on Pineal Cell Biology, Oxford (UK).
1992 Vth International Symposium on Avian Endocrinology; Edinburgh (UK).
1992 Intl. Symp.on Melatonin and Pineal Gland from Basic Sci. to Clinical Appl.; Paris

INDIA

- 2016 XXVI meeting and National Symposium on Chronobiology, Mysore
2016 Indian Science Congress Association, Mysore
2015 XXV meeting and National Symposium on Chronobiology, Raipur
2014 Society for Comparative Endocrinology and Reproductive Biology, Trichi.
2013 International conference on Comparative Endocrinology, Nagpur
2011 4th National Conference on Nanomaterials and Nanotechnology, Lucknow
2011 International Congress of Indian Ornithology, SACON, Coimbatore
2011 35th annual conference of Ethological Society of India
2008 Indian Society for Chronobiology, Raipur
2008 Thematic workshop in Avian Biology
2008 Public lecture at IISER, Mohali.
2008 Lectures, Wild Life Institute, Dehradun.
2008 Invited lecture at Department of Zoology, Pune University.
2007 Lecture in SERC School in Herpetology, North-Orissa University, Baripada
2007 PAC lecture at Delhi University
2006 Trends and techniques in Molecular Endocrinology
2006 Lecture in seminar and workshop in University of Delhi
2006 Invited lecture in Symposium of Indian Society for Chronobiology, Shillong.
2006 Recent Advance in Appl. Zoology, CCS University, Meerut, (Plenary lecture).
2006 Gold medal oration, SRBCE meeting, IIT Roorkee, February.
2006 Refresher Course in Zoology, University of Delhi, Delhi, January.
2006 93rd session of ISCA (Animal, Veterinary and Fishery Science), Hyderabad, January.
2005 Refresher Course in Zoology, University of Delhi, Delhi; December.
2005 National Symposium on Chronobiology; Varanasi.
2005 National Sym. on Comp. Endo. and Rep. Physiol.: Retrospect and prospect; Delhi,
2005 Critical appraisal & hands-on training on adv. tech. in endocrine research, Aligarh).
2005 XXII National Symposium of the SEBCE; Santiniketan.
2004 National Symposium on Chronobiology; Chidambaram.
2002 Innovations and Prospects in Life Sciences, Raipur.
2002 Natl Sem. on Environmental Biology and Fish Biology, Vishwa Bharti, Santiniketan.
2002 XX National Symposium of SRBCE; Tiruchirappalli.
2002 Refresher course in Zoology, Gorakhpur University.
2001 Refresher course in Zoology, Allahabad University.
2001 Refresher course in Zoology, Lucknow University.
2001 Refresher course in Zoology, Jiwaji University, Gwalior.
2000 XIX Natl. Symposium of Soc. for Reprod. Biology and Comp. Endocrinology; Baroda.
2000 National Symposium on Chronobiology; Gulbarga.
1999 National Symposium on Recent Advances in Pineal Research; Raipur.
1994 National Symposium on Ethology; Lucknow.
1994 National Symposium on Chronobiology; Lucknow.
1993 International Symposium on Recent Trends in Life Sciences; Hyderabad (India).
1990 International Symposium on Current Status of Chronobiology; Raipur (India).
1990 Seminar on Wildlife and Biotechnology; Ambah (M. P.).
1985 Second National Convention of Young Scientists; Meerut.

PARTICIPATION IN RESEARCH AND EDUCATIONAL TRAINING

- 2002-15 Faculty is SERC/ SERB Schools in Chronobiology, Herpetology and Neuroscience.
2000 37th Natl Workshop on Radiochemistry and Appl. of Radioisotopes; Pantnagar.
1995 UGC Refresher Course in Zoology; Ch. Charan Singh University, Meerut.
1990 Academic Staff Orientation Program; Aligarh Muslim University, Aligarh
1989 UGC Refresher Course in Zoology; Kashmir University, Srinagar.
1989 2-week Intl workshop on Methods and Concepts in Chronobiology; Madurai
1985 A 2-week training on Chronobiological techniques; M K University, Madurai.

RESEARCH PROJECTS

Current projects

- 2016-2019** Mechanism of food-induced effects on reproduction and metabolism: A study on Zebra finches; funded by **SERB, New Delhi**
- 2014 – 2016** Indo-US Center for Biological Timing, funded by **IUSSTF, New Delhi**
- 2013-2018** Anticipation in genes: Molecular, physiological and behavioral correlates of response of circa-annual clocks to seasons in night-migratory songbirds – funded by **Department of Biotechnology, Govt. of India.**

Completed projects

- 2007-2014** Avian circadian seasonal systems: from behaviour to molecules – funded under IRHPA scheme by the Department of Science and Technology, India.
- 2011-2014** Circadian brain photoreceptors in birds I: Localization and functional evaluation- funded by Council of Scientific & Industrial Research, India
- 2011-2014** Neurobiology and Understanding the Circadian System Linkage of Cognitive Performance in an Avian Model System- funded under CSI by the Department of Science and Technology, India
- 2012 – 2014** Mechanism of adaptation to seasonal changes in vertebrates – funded by Department of Science and Technology, India
- 2007-2010** Immunohistochemical study of seasonal system in birds - funded by the Council of Scientific & Industrial Research, India.
- 2005-2009** Role of food in regulation of circadian and seasonal responses in birds- funded by the Department of Science and Technology, India, (Co-PI).
- 2002 – 2005** An immunohistochemical study of the photoperiodic transduction in birds- funded by the Council of Scientific & Industrial Research, India.
- 2000 – 2002** DST- DAAD International Collaboration project with Max-Planck Institute of Biological Rhythm Research, Andechs, Germany.
- 1999 – 2002** Role of melatonin in avian circadian system - funded by the Department of Science and Technology, India.
- 1999 – 2002** Sensitivity of circadian entrainment pathway in the bunting (*Emberiza sp.*) – funded by the Council of Scientific & Industrial Research, India.
- 1996 – 1999** Spectral sensitivity of photoreceptors mediating photoperiodic entrainment and induction in the blackheaded bunting - funded by CSIR, India.
- 1992 – 1995** Light relations of circadian rhythms in the migratory blackheaded bunting, *Emberiza melanocephala* - funded by CSIR, India.
- 1989 – 1992** Strategies of endogenous programming in palaeartic-Indian migratory birds – funded by the University Grants Commission of India.
- 1988 – 1991** Properties of biological clocks underlying photoperiodic phenomena in birds – funded by the Department of Science and Technology, India.
- 1989-1990** Photoperiodic control of timing of gonadal regression (refractoriness) in birds - funded by the University Grants Commission of India.

RESEARCH COLLABORATION (last 5 years)

- Salk Institute for Biological Studies, San Diego, USA (Dr. Satchidananda Panda)
- University of California, San Diego, USA (Prof. Michael Gorman)
- University of Lucknow, India (Prof. Sangeeta Rani, Dr. Shalie Malik)
- National Institute of Science Education and Research, India (Dr. Praful Singru)
- CCS University, Meerut, India (Prof. S. K. Bhardwaj)
- University of Mangalore, India (Dr. Monika Sadananda)
- National Brain Research Institute, India (Dr. Soumya Iyengar)

TEACHING: Both undergraduate and post-graduate teaching since 1983. Have taught a variety of courses in 5 different Indian universities, and in a US university (Texas A&M University, marked with an asterisk). Animal Behaviour; Animal Physiology; Biology of Reproduction; Biostatistics; Chronobiology; Comparative Endocrinology*; Endocrine Physiology,

Environmental Biology; Neuroendocrinology, Human Anatomy and Physiology*; Regulatory and Behavioral Neuroscience*; General Zoology (Vertebrates and Invertebrates)

SERVICE TO PROFESSION

Peer review of research proposals

Department of Science and Technology
Council of Scientific and Industrial Research
Department of Biotechnology
National Science Foundation (USA).

Peer review of scientific journals

Cell and Tissue Research, Journal of Comparative Physiology, Naturwissenschaften;
Hormones and Behaviour; Journal of Circadian Rhythms
Comparative Biochemistry and physiology; General and Comparative Endocrinology
Physiology and Biochemical Zoology; PLoS One, Journal of Experimental Biology, Journal of Ornithology, Photochemistry and Photobiology; Comparative Biochemistry and Physiology; Chronobiology International

Scientific activity organized

2012 International Congress on Chronobiology
2011 Organized meeting of Bird Biology core group.
2010 Ninth SERC School in Chronobiology
2002 First SERC School in Chronobiology.
1994 National Symposium of Indian Society for Chronobiology.

RESEARCH SUPERVISION

12 Ph. D. and 12 M. Phil. students have obtained their degrees. Four Ph. D. and two M. Phil students are working in the lab.

ADMINISTRATIVE EXPERIENCE

Chairman, Governing Body, Shaheed Bhagat Singh College, Univ. of Delhi (one-and-half term)
Member, Governing Body, Shaheed Bhagat Singh College, University of Delhi (2 terms)
Member, Governing Body, Ramjas College, University of Delhi (3 terms)
Member and Treasurer, ARSD College, University of Delhi (1 term)
Member, Governing Body, Deen Dayal Upadhyay College, University of Delhi (2 terms)
Member, Governing Body, Shaheed Sukhdev College of Buss. Studies, University of Delhi (1 term)
Member, Governing Body, International Student House, University of Delhi (last 7 years)
Secretary, Indian Society for Chronobiology
Member, Special Committee, JNU, New Delhi
Assistant Provost, Hostel, University of Lucknow
Chairman, SERB Avian Biology School, Dept. of Science and Technology, New Delhi
Director, SERC/ SERB School in Chronobiology, Dept. of Science and Technology, New Delhi
Member, Uttar Pradesh Wildlife and Biodiversity board (1 term)
Member, Scientific Committee of the International Ornithological Congress, Hamburg.

BOOKS AUTHORED/ EDITED (including in process)

2016 Biological Timekeeping: Clocks, Rhythms and Behavior, edited (Springer, in press)
2014 Special volume on Chronobiology, Indian J. Experimental Biology. May 2014.
2002 Biological Rhythms, edited (Narosa Publishing House, New Delhi/ Springer-Verlag, Germany).
1996 Animal Behaviour (Himalaya Publishing House, Bombay).

RESEARCH PUBLICATIONS

List of publications follows in the next page.

RESEARCH PUBLICATIONS

2016

S. K. T. Taufique and **V. Kumar** (2016) Differential activation and tyrosine hydroxylase distribution in the hippocampal, pallial and midbrain brain regions in response to cognitive performance in Indian house crows exposed to abrupt light environment. Behavioural Brain Research 314: 21-29.

N. A. Jha and **V. Kumar** (2016) Protein rich food does not affect singing behavior and song quality in adult zebra finches, *Taeniopygia guttata*. Current Science (in press)

D. Singh, N. Trivedi, S. Malik, S. Rani and **V. Kumar** (2016) Timed food availability affects circadian behavior but not the neuropeptide Y expression in Indian weaverbirds exposed to atypical light environment. Physiology & Behavior 161: 81-89.

Surbhi, A. Rastogi, S. Malik, S. Rani and **V. Kumar** (2016) Seasonal neuronal plasticity in song-control and auditory forebrain areas in subtropical non-migratory and Palearctic-Indian migratory male songbirds. Journal of Comparative Neurology doi: 10.1002/cne.24000

O. P. Singh, S. Kumar, U. Singh, **V. Kumar**, R. Lechan and P. Singru, Praful, Cocaine-and amphetamine regulated transcript peptide (CART) in the brain of zebra finch, *Taeniopygia guttata*: Organization, interaction with neuropeptide Y, and response to changes in energy status. Journal of Comparative Neurology doi: 10.1002/cne.24004.

Surbhi, A. Rastogi, S. Malik, S. Rani and **V. Kumar** (2016) Changes in brain peptides associated with reproduction and energy homeostasis in photosensitive and photorefractory migratory redheaded buntings. General and Comparative Endocrinology 230-231: 67-75.

I. Mishra, D. Singh and **V. Kumar** (2016) Daily expression of genes coding for neurotransmitters in central and peripheral tissues of redheaded bunting: implication for circadian regulation of physiology in songbirds. Chronobiology International 33: 280-292.

A. K. Trivedi, J. Kumar, S. Rani, **V. Kumar** (2016) Pinealectomy abolishes circadian behavior and interferes with circadian clock gene oscillations in brain and liver but not retina in a migratory songbird. Physiology & Behavior 156: 156-163.

S. K. T. Taufique, N. A. Jha and **V. Kumar** (2016) Circadian rhythm determines the timing of activity, and ingestive and grooming behaviours in Indian house crows, *Corvus splendens*. Current Science 110: 897-901.

A. Rastogi, Surbhi, S. Malik, S. Rani and **V. Kumar** (2016) Annual life-history dependent differences in the seasonal change in neural activity of the olfactory system between non-migratory and migratory songbirds. Behavioural Brain Research 296:233-239.

2015

D. Singh, A. K. Trivedi, S. Rani, S. Panda and **V. Kumar** (2015) Circadian timing in central and peripheral tissues in a migratory songbird: Dependence on annual life-history states. The FASEB Journal 29: 4248-4255.

G. Majumdar, G. Yadav, S. Rani and **V. Kumar** (2015) Bird eyes distinguish summer from winter: Retinal response to acute photoperiod change in the night-migratory redheaded bunting. Journal of Chemical Neuroanatomy 68: 55-60.

G. Majumdar, S. Rani and **V. Kumar** (2015) Hypothalamic gene switches control transitions between seasonal life history states in a night-migratory photoperiodic songbird. Molecular and Cellular Endocrinology 399: 110-121.

Surbhi, A. Rastogi, S. Rani and **V. Kumar** (2015) Seasonal plasticity in the peptide neuronal systems: Potential roles of GnRH, GnIH, NPY and VIP in regulation of reproductive axis in subtropical Indian weaver birds. Journal of Neuroendocrinology 27: 357-369.

G. Majumdar, A. K. Trivedi, N. J. Gupta and **V. Kumar** (2015) Circadian synchronization determines critical day length for seasonal responses. Physiology and Behavior 147: 282-290.

A. K. Trivedi, J. Kumar, S. Rani and **V. Kumar** (2015) Adaptation of oxidative phosphorylation to photoperiod-induced seasonal metabolic states in migratory songbirds. Comparative Biochemistry Physiology A Mol Integr Physiol 184C: 34-40.

S. Malik, J. Singh, A. K. Trivedi, S. Singh, S. Rani and **V. Kumar** (2015) Nocturnal melatonin levels decode daily light environment and reflect seasonal states in night-migratory blackheaded bunting (*Emberiza melanocephala*) Photochemistry and Photobiological Sciences 14, 963-971.

G. Yadav, S. Malik, S. Rani and **V. Kumar** (2015) Role of light wavelengths in synchronization of circadian physiology in songbirds. Physiology and Behavior 140:164-171.

T. J. Stevenson, M. E. Visser, **V. Kumar**,..... B. Helm et al. (2015; multi-authored review) Disrupted seasonal biology impacts health, food security and ecosystems Proceeding of Royal Society. B. oi: 10.1098/rspb.2015.1453. (Review)

V. M. Cassone and **V. Kumar** (2015) Circadian Rhythms. In: Sturkie's Avian Physiology. Sixth Edition (Ed. C. G. Scanes). Elsevier (Academic Press), Amsterdam. pp. 811-828.

2014

A. K. Trivedi, J. Kumar, S. Rani, **V. Kumar** (2014) Annual life history-dependent gene expression in the hypothalamus and liver of a migratory songbird: Insights into the molecular regulation of seasonal metabolism. J. Biol. Rhythms 29: 332-345.

P. Budki, S. Malik, S. Rani and **V. Kumar** (2014). Circadian rhythms are not involved in the regulation of circannual reproductive cycles in a sub-tropical bird, the spotted munia. J. Exp. Biol. 217:2569-2579.

Surbhi, Y. Kumari, S. Rani, K. Tsutsui and **V. Kumar** (2014) Duration of melatonin regulates seasonal plasticity in subtropical Indian weaver bird, *Ploceus philippinus*. Gen. Comp. Endocr. DOI: 10.1016/j.ygcen.2014.06.004.

A. Srivastava, N. Trivedi, S. Malik, S. Rani and **V. Kumar** (2014) Molecular basis of photoperiodic control of reproductive cycle in a subtropical songbird, the Indian weaverbird (*Ploceus philippinus*). Gen. Comp. Endocr. DOI: 10.1016/j.ygcen.2014.08.012

S. Srivastava, S. Rani and **V. Kumar** (2014) Photoperiodic induction of pre-migratory phenotype in a migratory songbird: Identification of metabolic proteins in flight muscles. J. Comp. Physiol. B. 10.1007/s00360-014-0827-y.

G. Majumdar, G. Yadav, S. Rani and **V. Kumar** (2014). A photoperiodic molecular response in migratory redheaded bunting exposed to a single long day. Gen. Comp. Endocr. 204:104-113.

S. Malik, S. Singh, S. Rani and **V. Kumar** (2014). Life at a different pace: Annual itineraries are conserved in seasonal songbirds. J. Biosci. 39: 485-491.

S. Malik, P. Budki, S. Rani and **V. Kumar** (2014). Optimization of circadian adaptation to physical enrichment: Effects on activity behavior in a subtropical songbird. J. Ornithology 155: 283-290.

A. K. Trivedi, S. Rani and **V. Kumar** (2014) Circadian adaptation to seasons: Effects on activity behavior in subtropical house sparrow, *Passer domesticus*, Biol. Rhythm Res. 45: 465-475.

S. Rani and **V. Kumar** (2014) Photoperiodic regulation of seasonal reproduction in higher vertebrates. Indian J. of Exp. Biol. 52: 413-419.

S. Malik, G. Yadav, S. Rani and **V. Kumar** (2014) Light wavelength dependent circadian and seasonal responses in blackheaded bunting. Indian J. of Exp. Biol. 52: 448-459.

I. Mishra, A. K. Trivedi and **V. Kumar** (2014) Daily behavior can differ between colour morphs of the same species: A study on circadian activity behavior of grey and pied zebra finches. Indian J. of Exp. Biol. 52:516-520.

Surbhi and **V. Kumar** (2014) Avian photoreceptors and their role in the regulation of daily and seasonal physiology. Gen. Comp. Endocr. DOI: 10.1016/j.ygcen.2014.06.001. (Review)

A. K. Trivedi and **V. Kumar** (2014) Melatonin: An internal signal for daily and seasonal timing. Indian J. Exp. Biol. 52:425-437. (Review).

2013

D. Singh, S. Rani and **V. Kumar** (2013). Daily expression of six clock genes in central and peripheral tissues of a night-migratory songbird: Evidence for tissue specific circadian timing. Chronobiol. Int. 30: 1208-1217.

D. Singh, Y. Kumari, A. Rastogi, S. Rani and **V. Kumar** (2013). Neuropeptide Y mRNA and peptide in the night-migratory redheaded bunting brain. Cell and Tissue Res. 354: 551-562.

A. Rastogi, Y. Kumari, S. Rani and V. Kumar (2013). Neural correlates of migration: Activation of putative hypothalamic clock(s) in and out of migratory state in the night-migratory blackheaded bunting (*Emberiza melanocephala*). PLoS One 8(10), e70065

N. J. Gupta and **V. Kumar** (2013). Testes play a role in termination but not in initiation of the spring migration in the night-migratory blackheaded bunting. Anim. Biol. 63:321-329.

S. Rani and **V. Kumar** (2013). Avian circannual systems: persistence and sex differences. Gen. Comp. Endocrinol. 190: 61-67. (Review)

2012

J. Singh, P. Budki, S. Rani and **V. Kumar** (2012). Temperature alters the photoperiodically controlled phenologies linked with migration and reproduction in a night-migratory songbird. Proc. R. Soc. B. 279: 509-515.

J. Singh, A. Rastogi, S. Rani and **V. Kumar** (2012). Food availability affects circadian clock-controlled activity and zugunruhe in the night migratory male blackheaded bunting (*Emberiza melanocephala*). Chronobiology Int. 29: 15-25.

J. Singh, A. Rastogi, S. Rani and **V. Kumar** (2012) Functional similarity in relation to the external environment between circadian behavioral and melatonin rhythms in the subtropical Indian weaver bird. Horm. Behav. 61: 527-534.

P. Budki, S. Rani and **V. Kumar** (2012). Persistence of Circannual Rhythms under Constant Periodic and Aperiodic Light Conditions: Sex Differences and Relationship with the External Environment. J. Exp. Biol. 215:3774-3785.

2011

A. Rastogi, Y. Kumari, S. Rani and **V. Kumar** (2011). Phase inversion of neural activity in the olfactory and visual systems of a night-migratory bird during migration. European J. Neurosci. 34: 99-109.

2010

J. Singh, S. Rani, and **V. Kumar** (2010) Presence of a conspecific renders survival advantages in the migratory redheaded bunting: test through the effects of restricted feeding on activity pattern and survivorship. Chronobiol. Int. 27: 111-127.

V. Kumar, J. C. Wingfield, A. Dawson, M. Ramenofsky, S. Rani, and P. Bartell (2010). Biological Clocks and Regulation of Seasonal Reproduction and Migration in Birds. Physiol. Biochem. Zool. 83:827-35 (review).

2009

S. Rani, S. Singh, S. Malik, J. Singh, and **V. Kumar** (2009) Synchronization of Indian weaverbird circadian rhythms to food and light zeitgebers: Role of pineal. Chronobiol. Int. 26: 653-665.

P. Budki, S. Rani, and **V. Kumar** (2009) Food deprivation during photosensitive and photorefractory life history stages affects reproductive cycle in the migratory redheaded bunting (*Emberiza bruniceps*). J. Exp. Biol. 212:225-230.

2008

S. P. Karaganis, **V. Kumar**, P. D. Beremand, M. J. Baliey, T. L. Thomas, V. M. Cassone (2008) Circadian genomics of the chick pineal gland in vitro. BMC Genomics 9:206 doi: 10.1186/1471-2164-9-206.

V. M. Cassone, P. A. Bartell, B. J. Earnest, **V. Kumar** (2008) Duration of Melatonin Regulates Seasonal Changes in Song Control Nuclei of the House Sparrow *Passer domesticus*: Independence from Gonads and Circadian Entrainment. J. Biol. Rhythms 23: 49-58.

J. Singh, P. Budki, S. Rani and **V. Kumar** (2008) Regulation of seasonal responses in birds: Role of photoperiod and biological clocks. Proceedings of the 4th CBP Meeting in Africa: Mara 2008, "Molecules to Migration: The Pressures of Life" Madimond, pp 487 – 496.

S. Rani, S. Malik, J. Singh, S. Singh and **V. Kumar** (2008) The photoperiodic and circadian control of migratory restlessness (*Zugunruhe*) in Palaearctic Indian migratory bunting: a new model to study migratory physiology. Proceedings of the 4th CBP Meeting in Africa: Mara 2008, "Molecules to Migration: The Pressures of Life", Madimond, pp 551 – 558.

2007

V. Kumar, S. Rani, S. Malik, A. K. Trivedi, I. Schwabl, B. Helm, E. Gwinner (2007) Daytime light intensity affects seasonal timing via changes in the nocturnal melatonin levels. Naturwissenschaften 94:693-696

V. Kumar, T. J. Van't Hof, and Eberhard Gwinner (2007) Circadian behavioral and melatonin rhythms in the European starling under light-dark cycles with steadily changing periods: Evidence for close mutual coupling? Horm. Behav. 52:409-416.

S. Rani, S. Singh and **V. Kumar** (2007) Photoperiodism, pineal clock and seasonal reproduction in the Indian weaver bird (*Ploceus philippinus*). *J. Ornithology* 148: 601-610.

2006

S. Rani, S. Malik, A. K. Trivedi, S. Singh and **V. Kumar** (2006) A circadian clock regulates migratory restlessness in the blackheaded bunting (*Emberiza melanocephala*) *Current Sci.* 91:1093-1095.

A. K. Trivedi, S. Rani and **V. Kumar** (2006) Natural light restricted to twilight delays the timing of testicular regression but does not affect the timing of the daily activity rhythm of the house sparrow (*Passer domesticus*). *BMC: J. Circa Rhythms* 4:5.

A. K. Trivedi, S. Rani and **V. Kumar** (2006) Control of annual reproductive cycle in the subtropical house sparrow (*Passer domesticus*): Evidence for conservation of photoperiodic control mechanisms in birds. *BMC: Frontiers in Zoology* 3:12.

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