

## **Curriculum Vitae**

**AJAY NARAYAN SHARMA**

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### **Professional Work Experience**

August 2020 – Till Date : **Research Associate/ In charge** at Molecular and Genomic Pathology Department of Nepal Medicti Hospital

February 2019 – 2020 Aug : **Laboratory and Production Manager** at Biovac Nepal Pvt. Ltd.

November 2012 Oct – 2020 Aug : **Laboratory Manager** at Intrepid Nepal/Center for Molecular Dynamics- Nepal ([www.cmdn.org.np](http://www.cmdn.org.np)), Thapathali, Kathmandu, Nepal.

November 2011- October 2012: **Quality Control Officer** at Panas Pharmaceuticals Pvt. Ltd. Nepalgunj, Nepal

### **Research Projects accomplished and ongoing:**

1. **USAID- UCDAVIS PREDICT-II -Nepal Project-** Surveillance of different viral families among rodents, Non-Human Primates, Ducks as well as Humans at human wildlife interface. (ongoing)
2. **Genotyping of Hepatitis C virus from infection among Nepali IDUs.**
3. **Study on Selected Reproductive Health Morbidities among Women attending Reproductive Health Camps in Nepal.**
4. **Surveillance of birds of Nepal for Influenza virus and its sub types.** (project funded by FAO)
5. **Detection of antimicrobial resistance genes of public health importance in an urban, informal river settlement in Kathmandu, Nepal.** (study by CMDN in collaboration with UC Davis, OHI division)
6. **Campylobacter sp. and Salmonella typhi in Rhesus Macaques in Kathmandu.** (Study by CMDN)
7. **A study of Inducible clindamycin resistance in erythromycin resistant clinical isolates and prevalence of gene (erm and msr) of Staphylococcus Species.** (Supervised thesis of a MSc Student)
8. **Tuberculosis in Asian Elephant: A One Health Perspective.** (Study by CMDN)
9. **Detection of Typhoid from Sewage samples.** (project in collaboration with MIT)
10. **Cryptococcal Antigen Screening and Pre-Emptive Treatment Among AIDS Patients in Nepal** (study in collaboration with STIDH, Nepal)
11. **Study to determine pathways from the EPAS1 locus to the biological**

- adaptations among Tibetans at high altitudes.** (Study in collaboration with Case Western Reserve University – Dr. Cynthia Bell)
- 12. Biological mental health research in adolescents in Nepal - a feasibility study.** (a collaborative study with TPO Nepal)
  - 13. Estimation of Acquired HIV Drug Resistance among people living with HIV in Nepal.** (Study in collaboration with NCASC, Nepal)
  - 14. Quantitative detection of antibiotic resistance in human stool and environmental samples in Kathmandu Valley, Nepal.** (Collaborative study with MIT, USA)
  - 15. Understanding the Connections among Genes, Environment, Family Processes, and Mental Health.** (Collaborative study among ISER-N, University of Michigan and CMDN.)
  - 16. Non-Invasive Genetic Population Survey of Snow Leopard and Wolf in Nepal.** (Study by National Trust for Nature Conservation, Nepal)
  - 17. Species identification using DNA Bar-coding of mitochondrial COI followed by sequencing.** (Study by CMDN)
  - 18. Genetic Divergence and Estimation of Divergence Time of the Himalayan Wood Mouse, *Apodemus gorkha* in Nepal.** (Study project by a PhD student of Nepal)
  - 19. Musk Deer in Manang: A Study on Species Confirmation, Distribution and Population Census** (Study by National Trust for Nature Conservation, Nepal & CMDN)
  - 20. Screening of *Nosema*, *Crithidia* and *Acarapis woodi*, on native honeybees of Nepal.** (project of a PhD student of University of Wyoming)
  - 21. Nepal Fish Biodiversity Project.** (Use of eDNA techniques in conjunction with conventional fishing to find out the total fish species in Karnali River.)
  - 22. The prevalence of Canine Distemper Virus (CDV) in street dogs and wildlife in Suryabinayak VDC, Bhaktapur, Nepal: A pilot study.** (Study by CMDN)

#### **Academic Qualification:**

2009 - 2011	<p><b>MSc. Biotechnology</b>, from HNB Garhwal University</p> <p>Result: <b>Distinction (77.40%)</b> (Equivalent GPA: 3.5)</p> <p>Dissertation Topic: <b>“SCREENING FOR ANTIMICROBIAL ACTIVITY OF FEW MEDICINAL PLANTS OF WESTERN NEPAL”.</b></p>
2006 - 2009	<p><b>B.Sc. Biotech with Chemistry, Botany and Zoology</b>, H.N.B. Garhwal University, Uttarakhand (India),</p> <p>Result: <b>Distinction (74.2 %)</b> (Equivalent GPA: 3.0)</p> <p>Dissertation Topic: <b>“USE OF MOLECULAR GENETIC METHOD FOR SPECIES AND SEX DETERMINATION OF RANDOMLY SELECTED SCAT SAMPLES AVAILABLE AT</b></p>

## **WILDLIFE INSTITUTE OF INDIA.”**

2003 - 2005

**10+2** form SM Campus (Janakpur Dham) HSEB Nepal.

Result: **First Division (71.6 %)**( Equivalent GPA: 3.0)

1993 - 2003

**School Leaving Certificate (SLC)** Shree Cha. Ma. V. Higher Secondary School, Siraha, HMG Board, Nepal

## **Publications:**

- **“Interactions between Oxidative Stress, Lipid Profile and Antioxidants in Breast Cancer: A Case Control Study.”** -Rakesh Kumar Gupta, **Ajay Narayan Sharma** et. al (2012); *Asian Pacific Journal of Cancer Prevention, Vol 13, 6295-9298*
- **“Prevalence of Subclinical Hyperthyroid Disease In Population of Central Nepal and Its Association With Age and Gender: A Hospital-Based Study.”** Rakesh Kumar Gupta, Suprita Gupta, Amit Kumar Patel , **Ajay Narayan Sharma**, Pavan Kumar Gupta (2013); *Medica Innovatica, December 2013, Volume 2 - Issue 2*
- **“Diabetic Retinopathy: A Comprehensive Literature Review”** – Rakesh Kumar Gupta, **Ajay Narayan Sharma** et. al; *Medica Innovatica, June 2014, Volume 3 - Issue 1*
- **“Surveillance of Influenza A virus and its subtypes in migratory wild birds of Nepal”** -Dibesh Karmacharya, Sulochana Manandhar, **Ajay Sharma**, Tarka Bhatta, Pratikshya Adhikari, Adarsh Sherchan, Bishwo Shrestha, Manisha Bista, Rajesh Rajbhandari, Mohinder Oberoi, Khadak Bisht, Jean-Marc Hero, Ravi Dissanayake, Maheshwar Dhakal, Jane Hughes and Nitish Debnath- *PLoS One. 2015 Jul 15;10(7): e0133035. doi: 10.1371/journal.pone.0133035. eCollection 2015.*
- **“Incidental discovery of non-focused carnivore species during opportunistic non-invasive sampling for genetic study of Bengal tiger (*Panthera tigris tigris*) and snow leopard (*Panthera uncia*) in Nepal.”**- Jivan Shakya, Kanchan Thapa, Priya Joshi, Manisha Bista, Som Ale, Sulochana Manandhar, Govind P Sah, **Ajay Sharma**, Maheshwar Dhakal, Jan E Janecka, Marcella J Kelly, Lisette Waits and Dibesh Karmacharya; *Asian Journal of Conservation Biology, December 2016. Vol. 5 No. 2, pp.81-88*AJCB: FP0077ISSN 2278-7666 ©TCRP2016
- **“Eurasian lynx and Pallas’s cat in Dolpa district of Nepal: genetics, distribution and diet”**- Geraldine Werhahn, Naresh Kusi Dibesh Karmacharya, Adarsh Man Sherchan, Prajwol Manandhar, Sulochana Manandhar, Tarka Raj Bhatta, Jyoti Joshi, Susmita Bhattarai, **Ajay Narayan Sharma**, Jennifer Kaden, Muhammad Ghazali And Helen Senn-*CATnews 67 Spring 2018*

- **"Species, sex and geo-location identification of seized tiger (*Panthera tigris tigris*) parts in Nepal- a molecular forensic approach"** – Dibesh Karmacharya, Adarsh M Sherchan, Santosh Dulal, Prajwol Manandhar, Sulochana Manandhar, Jyoti Joshi, Susmita Bhattarai, Tarka R Bhatta, Nagendra Awasthi, **Ajay N Sharma**, Manisha Bista, Nawa R Silwal, Pravin Pokharel, Rom R Lamichhane, Netra Sharma, Bronwyn Llewellyn, Claudia Wultsch, Marcella J. Kelly, Digpal Gour, Lisette Waits, Jean M Hero, Jane Hughes- **PlosOne** ; doi.org/10.1371/journal.pone.0201639
- **"Further assessment of the Genus Neodon and the description of a new species from Nepal"** -Nelish Pradhanl, **Ajay N. Sharma**, Adarsh M. Sherchan, Saurav Chhetri, Paliza Shrestha, C. William Kilpatrick – **PlosOne**; <https://doi.org/10.1371/journal.pone.0219157>

#### **Conference:**

95th Annual Meeting of the American Society of Mammologists-

**Phylogeography of the Himalayan wood mouse (*Apodemus gorkha*) in Central Nepal.** Nelish

Pradhan, **Ajay N. Sharma**, Adarsh M. Sherchan, Saurav Chhetri and C. William Kilpatrick

Department of Biology, **University of Vermont, Burlington, VT 05405**

(NP, CWK); Center for Molecular Dynamics - Nepal, Kathmandu, Nepal (ANS, AMS); American Community School, Amman, Jordan (SC)

#### **Participations in workshops and Seminars:**

- 5 day CONNECTED workshop on **Application of Molecular Diagnostics for Plant Virus Surveillance** from 4<sup>th</sup> November 2019 to 8<sup>th</sup> November 2019 at IITA headquarters in Ibadan, Oyo State.
- **Strategic Planning Workshop to Address Mycotoxins in Food & Feed in Nepal organized by Feed the Future project**, 18<sup>th</sup> August 2019 to 21<sup>st</sup> August 2019 at the Dhulikhel Lodge Resort, Dhulikhel Nepal.
- 5 days **NDV Vaccine manufacturing training** from 23<sup>rd</sup> June 2019 to 27<sup>th</sup> June 2019 at Navetco, WHO-GMP certified company, Ho Chi Minh City, Vietnam.
- **Delivering Poultry Health Services for enhanced production - understanding the current gaps and challenges and uncovering effective solutions** - 2 Day Workshop & Conference, November 19-20, 2018, Kathmandu, Nepal organized by Biovac Nepal Pvt. Ltd.
- **Regional Workshop on Zoonotic Disease Pandemic Preparedness for South Asia, Using One Health Platform** organized by CMDN Kathmandu, Nepal on 15th March 2017.
- 14 days Extensive training on Cloning and DNA sequencing from 19<sup>th</sup> Feb

2017 to 5<sup>th</sup> March 2017 at **SCHOOL OF VETERINARY MEDICINE, ONE HEALTH INSTITUTE, UCDAVIS California, USA.**

- 8 days Extensive training on **DNA Barcoding, Bio-informatics – GIS and DNA Sequencing** from 22<sup>nd</sup> April 2014 to 30<sup>th</sup> April 2014 at **Leiden Naturalis, Institute of Environmental Sciences CML and Institute of Biology Leiden** respectively organized by **PUM, The Netherlands.**
- Attended the Summer School on Recent Trends in Biotechnology organized at **GURUKUL KANGARI UNIVERSITY, HARIDWAR**, by State Biotech from 16<sup>th</sup> to 30<sup>th</sup> Sept., 2008.
- Attended Lecture Series on Biotechnology, “Biologik’10” organized at University of Petroleum and Energy Studies. Dehradun from
- Presented Seminar on “Transgenic Animals.”
- Presented Seminar on “Electrophoresis.”
- Presented Seminar on “DNA and RNA Isolation”
- Presented Seminar on “Transposons.”

#### **Skill Sets:**

##### **Molecular Laboratory skills:**

- a. Next Gen Sequencing using MiSeq Platform.
- b. DNA Sequencing by capillary electrophoresis using ABI 310 Genetic analyzer.
- c. Genotyping (Microsatellite analysis using *ABI PRISM 310 Genetic Analyzer*)
- d. Extraction of Genomic DNA (Tissue, Scat), Plasmids by maxi-preparation and mini-preparation and Restriction Endonuclease digestion.
- e. Extraction and isolation of RNA and monitoring its quality.
- f. cDNA Preparation.
- g. PCR (Touch-up PCR, Nested PCR, Real Time PCR, Hot start PCR, Reverse transcriptase PCR, Multiplex PCR);
- h. Use of bioinformatics tools used for dry lab preparation. Primer designing, Gene Expression analysis. Able to use Bioinformatics tools for phylogenetic studies and use of sequence alignment tools BLAST, BLASTP, and BLASTN for species identification.
- i. ELISA
- j. Astute Record keeping, management and organization of ongoing, past and future projects.

##### **Biochemistry and instrumentation:**

1. Electrophoresis (SDS-PAGE, Agarose gel electrophoresis),
2. UV-Visible Spectrophotometry.
3. UV visible and fluorescence Microscopy
4. HPLC

##### **Microbiology Skills:**

1. Laboratory skills in handling Microorganisms from clinical specimens as well as Environmental samples.
2. Sound knowledge of Screening and identification tests in Microbiology for a pharmaceutical company.

### **Computer/Bioinformatics Proficiency**

1. Intermediate level learner in R.
2. Well versed with the use of Office Package (word, excel, powerpoint), Adobe Photoshop etc.
3. Well versed with Computer hardware and various softwares.

### **Personal Details:**

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- Date of Birth : 18/04/1986 A.D. {05/01/2043(B.S.)}
  - Father's Name : Mr. Dineshwar Thakur
  - Permanent Address : Siraha Municipality -7, Near Kabir mandir, Sagarmatha Nepal.
  - Current address : CMDN, Swaraj Sadan Prasuti Griha Marg, Thapathali-11, KTM
  - Nationality : Nepali
  - Citizenship Number : 11005373, Siraha Nepal
  - Passport number : 06171132, Siraha Nepal

### **References:**

#### **1. Dr. Gopi Aryal**

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Nepal Medici Hospital, Bhaisepati, Lalitpur, Nepal  
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#### **2. Dr. Dibesh Karmacharya**

International Director  
Center for Molecular Dynamics (CMDN)  
Thapathali-11, Kathmandu Nepal  
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#### **3. Dr. Sameer Mani Dixit**

Country Director and Public Health Biomedical Scientist,  
Center for Molecular Dynamics (CMDN)  
Thapathali-11, Kathmandu Nepal  
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**4. Sudhanshu Mishra, PhD**

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