BIODATA WITH LIST OF PUBLICATIONS

1	Name in full (Surname followed by forename, underline surname)	Dr NAVEEN KUMAR
2	Father's name	Late Shri Satya Deo Sharma
3	Date & Place of	12-02-1961, BIKANER (Rajasthan)
	Birth	
4	Discipline	Veterinary Surgery and Radiology
5	Year of	2022
	application	
6	Present position /	Principal Scientist
	designation	

7. Address

A) Official	Tel No. / Mobile No	+91-581-2302870/94102-59162
	E-mail	naveen.ivri1961@gmail.com
	Address with PIN	Principal Scientist
	code	Division of Surgery
		Indian Veterinary Research Institute,
		Izatnagar-243122 (Uttarpradesh)
B) Residential	Tel No./ Mobile No	+91-581-4002032/70601-63740
	Address with PIN	12-A Vaibhav, Sun City Vistaar, Pilibhit By
	code	Pass Road, Bareilly-243122 (Uttarpradesh)

8. Academic Record (Graduation onwards)

Sl	Institution	Degree	Year	OGPA/%	Distinction, if any
No.	Place	Awarded		of marks	
1.	Bachelors	Mohan Lal	1984	2.96/4.00	First Division
	(B.V.Sc. & A.H.)	Sukhadia			
		University,			
		Udaipur			
		(Rajasthan)			
2.	Masters	Mohan Lal	1987	7.43/10.00	First Division
	(M.V.Sc.)	SukhadiaUniver			
		sity, Udaipur			
		(Rajasthan)			
3.	Doctoral	Deemed	1997	8.30/10.00	First Division
	(Ph.D.)	University,			
		IVRI, Izatnagar			

4.	Diploma	in	Rashtriya	18.04.2001	Satisfactory	NA
	Computer		Computer			
	Application		Sakshartha			
			Mission,			
			Visakhapatnam			

9. Employment Record (Starting from the present one)

Sl	Institute	Position	From (Date)	To (Date)
No.	Place			
1.	ICAR	Principal Scientist	5-12-2006	Till date
	(IVRI, Izatnagar)			
2.	ICAR	Senior Scientist	5-12-1998	4-12-2006
	(IVRI, Izatnagar)			
3.	ICAR	Scientist (Senior	5-12-1997	4-12-1998
	(IVRI, Izatnagar)	Scale)		
4.	ICAR	Scientist	5-12-1989	4-12-1997
	(IVRI, Izatnagar)			
5.	Animal Husbandary	Veterinary	September,	November, 1989
	Department (Rajasthan)	Assistant Surgeon	1986	

10. Special attributes/attainments

$a) \ Fellowship \ of \ professional \ academy \ / \ scientific \ association \ / \ society$

FELI	FELLOWSHIP OF NATIONAL SCIENCE ACADEMIES					
1	Fellow,	National Academy of Veterinary	National	Individual		
	NAVS	Sciences, India		(In Recognition		
	(Year 2006)			of Significant		
				contributions for		
				the Advancement		
				of Veterinary		
				Sciences)		
SCIE	ENTIFIC ASSOC	CIATION				
1	Life Member	Indian Society for Veterinary Surgery (ISVS)	National	Individual		
2	Life Member	Indian Society for Veterinary Medicine (ISVM)	National	Individual		
3	Life Member	Indian Science Congress Association (ISCA)	National	Individual		
4	Life Member	Society for Biomaterials and Artificial Organs (SBOAI)	National	Individual		
5	Life Member	Society for Tissue Enginering and Regenerative Medicine (STERMI)	National	Individual		
6	Life Member	Indian Carbon Society, New Delhi (ICS)	National	Individual		

7	Life Member	Association of Indian Zoo and Wildlife Veterinarians	National	Individual
8	Life Member	Agricultural Research Services Scientists (ARSS) Forum	National	Individual
9	Life Member	Indian Society for Advancement of Canine Practice (ISACP)	National	Individual

b) International / National professional assignments

INT	INTERNATIONAL PROFESSIONAL ASSIGNMENTS					
1	Speaker (Year 2008)	International Conference on Medical Materials, Devices and Regenerative and Workshop	INTERNATIONAL Kathmandu (NEPAL)	Individual		
2	Speaker (Year 2012)	Ninth World Biomaterial Conference	INTERNATIONAL University of China Chengdu, CHINA	Individual		
3	Invited to Present Lead Paper (Year 2013)	Fourth Asian Biomaterials Congress	INTERNATIONAL Hong Kong University of Science and Technology, Hong Kong, China	Individual		
4	International Travel Support Rs 66,482=00 (Year 2012)	Department of Biotechnology, Government of India,	INTERNATIONAL Ref No: DBT/CTEP/02/ 201200054	Individual		
5	International Travel Support Rs 28,200=00 (Year 2013)	Department of Biotechnology, Government of India,	INTERNATIONAL Ref No: DBT/CTEP/02/ 201300295	Individual		
6	Invited as Guest Speaker	4 ^{rth} International Conference on Biotechnology and Bioengineering (ICBB-2015)	INTERNATIONAL In Singapore from December 11-13, 2015.	Individual		
7	Co-Chairman of session- Advances in Animal Biotechnology Sesion	3 rd World Congress on Biotechnology, International Convention Centre, Hyderabad,	INTERNATIONAL (Year 2012)	Individual		
8	International Reviewer Review Abstracts (30 in no.) for presentation suitability in conference	10th World Biomaterials Congress Montreal, CANADA from May 17-22, 2016	INTERNATIONAL (Year 2016)	Individual		
9	International	World Biomaterials Congress	INTERNATIONAL	Individual		

	Referee	Review Abstracts (15 in no.) for presentation in Montreal, CANADA from May 17-22, 2016.	(YEAR 2016)	
10	Co-Chairman of Tissue Engineering & Bio-imaging Session	BioTerm-2019 International Conference on Biomaterial- basedTherapeutic Engineering and Regenerative Medicine	INTERNATIONAL (YEAR 2019)	Individual
11	International Reviewer Review Abstracts (30 in no.) for presentation of suitability in Conference	11 th World Biomaterial Congress 2020 held at Glasgow, Scotland from 19-24 May, 2020.	INTERNATIONAL (YEAR 2020)	Individual
12	International Reviewer for the Project (Ministry of Agriculture of the Czech Republic)	Cell-mediated multilayered 4th generation biomimetic scaffold for single-step total skin substitute: from laboratory to clinical application Submitted by BřetislavLipovy (Project no NU22-08-00454)	INTERNATIONAL (YEAR 2020)	Individual
13	Reviewer of Peer reviwed International journals	 The Veterinary Journal Journal of Applied Animal Research South African Veterinary Journal Journal of Electron Microscopy (Oxford University Press) Journal of Veterinary Research Journal of Biomedical Materials Research Part A Journal of Biomedical Materials Research Part B International Journal Veterinary Science and Medicine Colloids and Surfaces B Bio Med Research International BAOJ Surgery Nigerian Journal of Clinical Practice Carbon Letters 	INTERNATIONAL	Individual

NA (IV)		 Hernia Colloids and Surfaces International Journal of Veterinary Science and Medicine Journal of Environmental Management Measurements 		
1	Reviewer for the Project	Development and evaluation of acellular biomaterial of marine origin for tissue repair in bovines	Department of Biotechnology, Government of India, New Delhi	Budget : 40 lakhs
2	Reviewer for the Project	Creating bioenginered skin: achievements through collaboration - multidisciplinary teams approach	Department of Biotechnology, Government of India, New Delhi	Budget : 1.8 Crore
3	Reviewer for the Project	Centre of Excellence in Veterinary Regenerative Surgery and Cell Based Therapy	Department of Biotechnology, Government of India, New Delhi	Budget : 24 Crore
4	Reviewer for the Project	Preparation and stabilization of bio-adhesives from collagen hydrolysate obtained from enzymatic extraction and hydrolysis of collagen (bovine/avian) for wet environment in biomedical applications	Department of Biotechnology, Government of India, New Delhi	Tata Innovation Fellowship
5	Co-Chairman	Session- Conservation and Husbandary Management	First Convention and National Workshop on Captive Wild Animal Management, New Delhi	National (Year 2001)
6	Co-Chairman	Ruminant Surgery Session	Silver Jublee Convention of ISVM and National Symposium on Animal welfare and sustainable health through recent therapeutic and disease management strategies, Pantnagar (UK)	National (Year 2007)
7	Member, Food and Refreshment Committee	XI National Conference of Animal Breeding and Genetics	Held at IVRI, Izatnagar on January 20-21,2011.	National (Year 2011)

8	Chairman for screening the applications and selecting participants	ICAR-Winter School on "Basic techniques in solid phase peptide synthesis and applications of synthetic peptides in animal disease diagnosis and research"	Held at IVRI from 22- 09-2011 to 12-10- 2011.	National (Year 2011)
9	Member, Selection Committee	For the Post of Assist/ Assoc/Prof in Veteriary Surgery Discipline	Narendra Deva University of Agriculturecand Technology, Kumarganj, Faizabad (U.P).	National (Year 2012)
10	Course Coordinator	Short Term Course	Training Course on Ultrasonography" held at IVRI from 19-04-2012 to 28-04-2012	National (Year 2012)
11	Co-Chairman	Orthopaedic Surgery Session	XXXVIII Annual Congress of Indian Society for Veterinary Surgery and International Symposium on New Horizons of Camel Surgery and Large Ruminant Surgery	National (Year 2014)
12	Expert Member	Rajasthan Public Service Commission	Rajasthan Public Service Commission (10,11 March, 2016) Selection of Veterinary Officers	National (Year 2016)
13	Member, Selection Committee	For the Post of Assistt/ Assoc/Prof in Veteriary Surgery Discipline	Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut- 250 110, UP.	National (Year 2018)
14	Member, Broad Subject Matter Area (BSMA) Committee	For developing uniform MVSc and PhD syllabus in Clinical Disciplines, all over India	Indian Council for Agricultural Research, New Delhi	National (Year 2018)
15	Member, Committee	For developing syllabus in for ARS Services Examination in Veterinary Surgery and Radiology Discipline	Indian Council for Agricultural Research, New Delhi	National (Year 2022)
16	Member, Board of Studies	Faculty of Veterinary and Animal Science, RAJUVAS, Bikaner (Rajasthan)	RAJUVAS, Bikaner (Rajasthan)	Individual
17	Reviewer of Peer reviewed National	 The Indian Journal of Veterinary Research Indian Journal of 	National Journals	Individual

	Journals	Veterinary Surgery	
		> Indian Journal of	
		Veterinary Medicine	
		➤ The Indian Journal of	
		Animal Sciences	
		➤ The Indian Veterinary	
		Journal.	
		Journal of Experimental	
		Biology and Agricultural	
		Sciences	
		Trends in Biomaterials	
		and Artificial Organs	
18	Member,	International Journal of National Journal	al Individual
	Scientific	Livestock Research	
	Advisory		
	Board		
19	Associate	Trends in Biomaterials and National Journa	al Individual
	Editor	Artificial Organs	

d) Awards, honours and recognition

S. No.	Name of Award/Prize/ Recognition	Awarding organization (Place/Country)	National/International/Instit utional/Professional Society	Individual / Collaborative
1	Best paper Award-Gold Medal and Certificate (Ruminant Surgery) (Year 2019)	Indian Society for Veterinary Surgery	NATIONAL Professional Society XXVII Annual Convention of the ISVS, Hisar	Collaborative
2	Best Paper Award-Year 2020	17thNational Congress on Canine Practice	National Symposium on "Maximizing Diagnosis, Therapy and Welfare in Canine Practice in Current Scenario" held at Jabalpur during 21-23 January 2020	Collaborative
3	M. N. Kulkarni Best paper presentation Award- 2019 M. N. Kulkarni Best paper presentation Award- Indian Association of Veterinary Immunologists and Specialists in Infectious Diseases		Collaborative	
4	Appreciation AwardYear 2017	41st Annual Congress of Indian Society for Veterinary Surgery	Held at Tirupati (Andhra Pradesh) during 14-16, December 2017.	
5	Certificate	CPCSEA	Certificate from CPCSEA for selection as NOMINEE of	Individual

			CPCSEA	
6	Best Scientist Award	EET CRS South Asian Education Award -18 and Top List-25 Award-18	INTERNATIONAL	Individual
7	Appreciation Letter	Director IVRI,	NATIONAL For publishing Research paper in High Impact factor (4.6) Journal	Individual
8	Appreciation Award for paper presentation	41st Annual Congress of Indian Society for Veterinary Surgery	NATIONAL ISVS, held at Tirupati, from 14-16, December 2017.	Collaborative
9	Best Paper in Short Communication Category	INTAS-POLIVET Journal.	NATIONAL Professional Society IntasPolivet, 6 (1): 39-41.	Collaborative
10	Second Prize Oral Paper Presentation	Indian Society for Veterinary Surgery	NATIONAL ISVS UP Chapter, 1 st March 2014,Kumarganj, Faizabad(UP.)	Collaborative
11	First Prize Oral paper presentation (Year 2008)	Indian Society for Veterinary Medicine	NATIONAL Professional Society XXVI Annual Convention of the ISVM, Ranchi	Collaborative
12	Second PrizeOral paper presentation (Year 2004)	Indian Society for Veterinary Medicine	NATIONAL Professional Society XXII Annual Convention of the ISVM, IVRI, Izatnagar	Collaborative
13	First Prize Oral paper presentation (Year 2004)	Indian Society for Veterinary Surgery	NATIONAL Professional Society XXVII Annual Convention of the ISVS, Jabalpur	Collaborative
14	Appreciation Certificate Oral paper presentation (Year 2004)	Indian Society for Veterinary Surgery	NATIONAL Professional Society XXVII Annual Convention of the ISVS, Jabalpur	Collaborative
15	Appreciation CertificatePoste r Presentation (Year 2004)	Indian Society for Veterinary Surgery	NATIONAL Professional Society XXVII Annual Convention of the ISVS, Jabalpur	Collaborative
16	Gangman Sharma Award (Year 1999)	Best Research Article in Indian Journal of Veterinary Pathology	NATIONAL Professional Society Indian Society for Veterinary Pathology	Collaborative
17	Smt. Ramani Ramchandran	Best Research Article in Indian	NATIONAL Professional Society	Collaborative

	Award (Year 1997)	Veterinary Journal	Indian Veterinary Association	
18	Appreciation Letter	Director IVRI,	NATIONAL	Individual
19	Appreciation Letter	Director IVRI,	NATIONAL	Individual
20	Certificate of Recoznition	Internatinal Journal of Livestock Research	NATIONAL	Individual

e) Scie	e) Scientific / professional leadership			
S1 No.	Title of Project	Funding Agency	Amount	Date of sanction and Duration
1.	DBT-GADVASU Canine Research Centre and Networks Development and evaluation of multiplex assay for detecting canine mammary tumour associated biomarkers in clinical cases of canine mammary cancer As Project Associate	Department of Biotechnology	Rs. 10.30 Crores	27/3/2018 to 26/9/2021 Three years
2.	miRNA profiling of canine mammary tumours for identification of miRNA signatures associated canine mammary tumours	IVRI, Izatnagar Institute Project	-	July 2019 to July21 Three years
3.	Evaluation of mesenchymal stem cells with or without growth factors (EGF and HFG) for liver regeneration in rat model (ID: IXX14039)	IVRI, Izatnagar Institute Project	-	July 2019 to July21 Three years
4.	Development of 3-D biodegradable dermal matrices for reconstructive surgery. As Principal Investigator	Department of Biotechnology	Rs. 82.664 lacs	25-05-2009 Year 2009-2012 Three and half years
5.	Mesenchymal stem cells construct on osteogenesis for repairing large bone defects in animal model As Project Associate	Department of Biotechnology	Rs. 37.548 lacs	11-03-2010 Year 2010-2013 Three years and half years

6.	Development of prophylactic	Department of	Rs.	25-01-2012
	as well as therapeutic DNA	Biotechnology	49.48	Year 2012-2015
	vaccine for canine mammary		lacs	Three years
	cancer.			
7.	A new therapeutic approach	IVRI,	-	Year 2009 to 2012
	to canine mammary tumour	Izatnagar		
	As Project Associate	Institute		
		Project		
8.	Development of	IVRI,	-	Year 2009 to 2012
	bioengineered collagen	Izatnagar		
	matrices for reconstructive	Institute		
	surgery	Project		
	As Project Associate			
9.	Treatment of surgical cases,	IVRI,	-	Continued
	preparation of animal models,	Izatnagar		
	collection of biopsies and	Institute		
	radiological diagnosis	Service Project		
10.	Development of biomaterials	Department of	Rs.	11-11-2005
	for reconstructive surgery in	Biotechnology	50.28	Year 2005-2009
	animals.		lacs	Four years
	As Principal Investigator			
11.	Diagnosis and Therapeutic	IVRI,	-	Year 2005 to 2008
	Management of Tumors in	Izatnagar		
	Dogs	Institute		
	As Project Associate	Project		
13.	NATP Misson mode project	ICAR	Rs.	Year: 2002-2004
	on Collection, Documentation		45.00	Two years
	and validation of Indigenous		lacs	
	technical Knowledge (ITK)			
1.4	As Co Investigator	ICAD A 11	D	V 2004 2006
14.	Studies on laparoscopic	ICAR- Ad-hoc	Rs.	Year: 2004-2006
	guided biopsy in animals		15.92	Two years
15	As Co Investigator	IVDI	lacs	V 2002 2006
15.	Diagnosis and treatment	IVRI,	_	Year: 2003-2006
	of different surgical	Izatnagar Institute		Three years
	conditions of udder and teat in farm animals			
		Project		
16.	As Project Associate	IVRI,	_	Year: 2003-2006
10.	Use of therapeutic ultrasound and	•		Three years
	acupuncture in musculo-	Izatnagar Institute		Timee years
	skeletal and neurological	Project		
	<u> </u>	Troject		
	disorders in different species of animals			
17.	As: Project Associate Application of	IVRI,		Year: 2003 to 2005
1/.	тррисации и	1 V IXI,		1 ea1. 2003 to 2003

	Laparoscopy in Clinic	cal	Izatnagar		Two years
	Diagnosis and Therapeutics in Veterina	173 7	Institute Project		
	Patients	цу	Troject		
	As Principal Investigato	or			
18.	Biomaterials for the		IVRI,		Year 2001 to 2005
	reconstruction of abdom	inal	Izatnagar		Four years
	wall defects in		Institute		
	animals		Project		
	As Project Associate				
INV	ITED SPEAKER				
S. No.	Title of Invited Talk	Organ	nizing Society		Place/Date/Page
1	Ablation of Pancreas-An	Clinic	al Endocrinology, CA	AS	IVRI, Izatnagar, March
	Animal Model		Course in Clinical		20 to April 9, 2001,pp
			rinology		71-72
2	Laminitis and its		o-Therapeutic Condi		IVRI, Izatnagar, March
	Nutritional Management		and Farm animals, S e on Nutrition and Di		20 to April 18, 2001,pp 278-285
3	Anaesthesia in Indian		shop of Captive Wild		New Delhi, April 26-
	Reptilian Species		al Management		28, 2001, pp 82-85.
4	Carbon Fibres for the		Carbon 2001, Confere	ence	Vidya Nagar (Anand)
	Reconstruction of Tendon	Procee	edings		Gujrat, October, 19-20,
	in Animals			2001, pp 150-158	
5	\mathcal{E}		Advance Training Course to Field Veterinarians "Current Advances"		Division of Surgery,
	Herma in Aminais		erinary Surgery"	ances	IVRI,Izatnagar, December 15-20, 2003
6	Handling and Usage of		ce Training Course t	o Field	Division of Surgery,
	Surgical Instruments		narians "Current Adv		IVRI,Izatnagar,
	-		erinary Surgery"		December 15-20, 2003
7	Demonstrations and		ce Training Course t		Division of Surgery,
	Practice of Techniques of		narians "Current Adv	ances	IVRI,Izatnagar,
	Laparotomy, Cystotomy, Rumenotomy and Intestinal	in vet	erinary Surgery"		December 15-20, 2003
	Surgery				
8	Management of Surgical	ICAR	sponsored Summer S	School	Division of Medicine,
	Conditions Associated with		nced diagnostic tech	-	IVRI,Izatnagar, July 15
	Nutritional Deficiency in		erapeutic approaches		to August 4, 2003, pp
	Dairy Animals		olic diseases in dairy		141-145
9	Tendon surgery in animals	anima	sponsored Summer		Centre for Advanced
	Tondon surgery in animals	Institu			Studies, PAU, Ludhiana,
					October 1-21, 2004
10	Recent Advances in	State 0	Conference "Recent		Under ASCAD, Held at
	Diagnostic Techniques in		ices and Techniques		Kota in year 2008
	Veterinary Surgery	_	ostic Methodology fo		(Rajasthan)
			nable Livestock and I opment"	oultry	
		Develo	ohmem		

11	SalyaChkitsa Me	In Hindi language in Rastriya	Hindi Cell, IVRI,
11	JaevPadarth Ki Upsogita	Sangoshti	Izatnagar, March 25,
	sacvi adarm Ki opsogra	Sangosha	2008,pp 10
12	Tandan Cumany in Animala	Chart tame training against	
12	Tendon Surgery in Animals	Short term training course	Regional Station,
	with Special Reference to	"Laboratory Diagnosis of Animal	Kolkata, December 10-
	Diagnosis	Diseases and Zoonosis"	23, 2009
13	Laparoscopic Surgery for	Short term training course	Regional Station,
	Veterinary Patients	"Laboratory Diagnosis of Animal	Kolkata, December 10-
		Diseases and Zoonosis"	23, 2009
14	Laparoscopic Surgery in	First International Conference on	Kottayam, Kerala,
	Veterinary patients: Present	Recent Advances in Surgery	September 4-6, 2009.
	Status and Future	(ICOS-2009)	Chaired by Hiroshi
	Perspectives	(= = = ,	Mizuno, Japan
15	Development of	Short term training course	Division of Animal
10	Biomaterials for	"Designing and synthesis of	Biotechnology, IVRI,
	Reconstructive Surgery	peptide antigen for diagnosis"	Izatnagar, Febuary 10-
	Reconstructive Burgery	peptide untigen for diagnosis	17, 2010
16	Development of	International Symposium "Role	Bikaner, Rajasthan,
10	Biomaterials for	of Biotechnology in Conserving	December 29-31, 2010,
	Reconstructive Surgery in	Biodiversity and Livestock	page 1-3
		1	page 1-3
	Veterinary Patients:	Development for Food Security	
		and Poverty Alleviation" and	
		XVII Annual convention of	
		ISVIB	
17	Applications of Scaffolds	Short course "Therapeutic	CAFT, P&C Division,
	in Stem Cell Therapy	Application of Stem Cells in	IVRI, Izatnagar, August
		Livestock"	25 to September 14,
			2011
<u> </u>			
18	Reconstructive Surgery	Short course "Therapeutic	CAFT, P&C Division,
18	Reconstructive Surgery with Stem Cell Scaffolds	Short course "Therapeutic Application of Stem Cells in	CAFT, P&C Division, IVRI, Izatnagar, August
18			
18		Application of Stem Cells in	IVRI, Izatnagar, August
18		Application of Stem Cells in	IVRI, Izatnagar, August 25 to September 14,
	with Stem Cell Scaffolds Diagnostic and Therapeutic	Application of Stem Cells in Livestock" International Congress "Modern	IVRI, Izatnagar, August 25 to September 14, 2011
	with Stem Cell Scaffolds	Application of Stem Cells in Livestock"	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012,
	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern"	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan,
	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012,
	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012,
19	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International
19	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3 rd World Congress	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre,
19	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September
20	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue Reconstruction	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3 rd World Congress on Biotechnology	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September 13-15, 2012
19	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue Reconstruction Development of	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3 rd World Congress on Biotechnology Advanced training course	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September 13-15, 2012 CAFT, College of
20	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue Reconstruction Development of Biomaterials for Veterinary	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3 rd World Congress on Biotechnology Advanced training course "Advances in Veterinary	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September 13-15, 2012 CAFT, College of Veterinary Science,
20	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue Reconstruction Development of Biomaterials for Veterinary Patients and their Clinical	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3rd World Congress on Biotechnology Advanced training course "Advances in Veterinary Diagnostic, Anaesthetic and	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September 13-15, 2012 CAFT, College of Veterinary Science, GADVASU, Ludhiana,
19 20 21	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue Reconstruction Development of Biomaterials for Veterinary Patients and their Clinical Applications	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3 rd World Congress on Biotechnology Advanced training course "Advances in Veterinary Diagnostic, Anaesthetic and Surgical techniques"	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September 13-15, 2012 CAFT, College of Veterinary Science, GADVASU, Ludhiana, October 3-23, 2012
20	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue Reconstruction Development of Biomaterials for Veterinary Patients and their Clinical Applications Tissue Engineering	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3 rd World Congress on Biotechnology Advanced training course "Advances in Veterinary Diagnostic, Anaesthetic and Surgical techniques" Advanced training course	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September 13-15, 2012 CAFT, College of Veterinary Science, GADVASU, Ludhiana, October 3-23, 2012 CAFT, College of
19 20 21	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue Reconstruction Development of Biomaterials for Veterinary Patients and their Clinical Applications Tissue Engineering Approaches for	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3rd World Congress on Biotechnology Advanced training course "Advances in Veterinary Diagnostic, Anaesthetic and Surgical techniques" Advanced training course "Advances in Veterinary	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September 13-15, 2012 CAFT, College of Veterinary Science, GADVASU, Ludhiana, October 3-23, 2012 CAFT, College of Veterinary Science,
19 20 21	with Stem Cell Scaffolds Diagnostic and Therapeutic Laparoscopy in Canine Patients Biomaterials and Tissue Engineering Approaches for Soft Tissue Reconstruction Development of Biomaterials for Veterinary Patients and their Clinical Applications Tissue Engineering	Application of Stem Cells in Livestock" International Congress "Modern Concepts in Canine Health and Diseases of Human Concern" and IX Annual Convention of ISACP in Track 8: Tissue Science and Engineering, 3 rd World Congress on Biotechnology Advanced training course "Advances in Veterinary Diagnostic, Anaesthetic and Surgical techniques" Advanced training course	IVRI, Izatnagar, August 25 to September 14, 2011 Bikaner, Rajasthan, February 9-11, 2012, page 65-70 International Convention Centre, Hyderabad, September 13-15, 2012 CAFT, College of Veterinary Science, GADVASU, Ludhiana, October 3-23, 2012 CAFT, College of

23	Scope and Use of Biomaterials in Farm Animal Surgery	VII convention of UP chapter of ISVS and Seminar on "Advances in farm animal surgery applicable under field conditions"	Department of Surgery and Radiology, COVS&AH, Mathura, December 29, 2012
24	Development of Biomaterials for large ruminants: From lab to clinical applications	Ruminant Surgery Session-I of XXXVIII Annual Congress of ISVS and International Symposium on "New Horizons of Camel Surgery and Large Ruminant Surgery"	College of Veterinary Science, RUVAS, Bikaner (Rajasthan) October 15-17, 2014
25	Development of Novel Biological Soft Tissue Materials for Regenerative Medicine	International Conference on Soft Materials, ICSM-2014,	Department of Physics, Malviya National Institute of Tecchnology, Jaipur from 6-10 October, 2014
26	Clinical Applications of Collagen based Biomaterials Developed at IVRI in Reconstructive Surgery of Canines	12 th Convention of ISACP and International Symposium on Challenges in Diagnosis and management of Emerging Diseases in Canine	Hotel KANHA SHYAM Allahabad, June,17-19, 2015
27	Development of Biomaterials and their Clinical Applications in Veterinary Patients BiTERM-2016	International Conference on Biomaterials, Biodiagnostics, Tissue Enginering, Drug Delivery and Regenerative Medicine	Indian Institute of Technology, New Delhi, April 15-17, 2016
28	Development of naturally derived biomaterials for tissue engineering	6 th Asian Biomaterials Conference (International Conference organized biannually globally)	Sri Chitra Institute, Thiruvananthapuram, Kerala, October 25-27, 2017
29	Development of Biomaterials for Regenerative Veterinary Medicine: From laboratory to clinical applications	37 Annual Convention of Indian Society for Veterinary Medicine	RAJUVAS, Bikaner (Rajasthan)
30	Tissue Engineering Approaches for Development of Scaffolds for Reconstructive Surgery	BioTerm-2019 International Conference on Biomaterial-based Therapeutic Engineering and Regenerative Medicine	Indian Institute of Technology, Kanpur, November 28 to December 1, 2019

Human Resource Development and Institute Building		
1	Acted as PRESIDING OFFICER to conduct IJSC Election-2012 at IVRI, Izatnagar	
	[Letter No. 1-1/CAO®/IJSC Ele./2012, dated 11-07-2012].	
2	Acted as CHAIRMAN of Purchase Committee for Purchase of Veterinary Medicine for	
	Animal Health Camp at Haridwar (U.K.) from 2-11-12 to 5-11-12 [Letter No. 15-	

	18/2012-13/Med, dated 29-10-2012].
3	Acted as CHAIRMAN of Purchase Committee for Purchase of Nitrogen Cylinders for the
	division [Letter No. 06-51/2011-12/Surgery, dated 23-02-2013].
4	Acted as CHAIRMAN of Purchase Committee for Purchase of Veterinary Medicine for
	Swine Production farm of IVRI [Letter No. 15-24/2012-13/Med, dated 20-03-2013].
5	Acted as MEMBER of Divisional Committee to suggest Renovations and Modifications
	in the Division [Letter No. 5-3/2009-Surgery, dated 22-09-2012].
6	Acted as MEMBER of committee for Procession/March on World Veterinary Day (28-04-
	2012)[Letter No. 1.1.WVD-IVRI/2012 dated 20-04-2012].
7	Acted as MEMBER of Divisional Committee for Physical Verification of Goods
	purchased in the Division [Letter No. 5-1/2012 /Surgery/2, dated 26-08-2012].
8	Acted as Stock Verification Officer to check the inventory Items of three labs of Project
	Coordinator (Pig) [Letter No 13-3/2011-2012/P&S dated 05-03-2012]
9	Acted as Member for Committee for Procession/March. As Warden Incharge I motivated
	the students to take part in Procession in and arround IVRI campus to spread the message
	on the occasion of World Veterinary Day (WVD).
10	Acted as MEMBER of Committee to organize Hindi Chetna Mass in month of September
	[Letter No. 8-3/2013/Hindi dated 23-07-2014].
11	Acted as MEMBER of Sports Organization Committee for smooth organization of Games
**	and Sports on 124 Foundation Day Celeberation of IVRI from 9-11, December, 2013
12	Acted as MEMBER of Divisional Committee for Physical Verification of Goods
12	purchased in the Division [Letter No. 5-1/2012 /Surgery/2, dated 26-08-2012].
13	Acted as Invigilator for conducting NET/ARSB Examination held on 19 th September,
13	2010.
14	Acted as MEMBER for Board of Studies.
15	Acted as Invigilator for conducting Final Semester Examination of deemed University
	IVRI.
16	Hostel warden: Acted as Hostel warden of Dhanwantri Hostel (Hostel No. 1). This is the
	largest hostel among the six hostels and lot of time and energy is required for mainlining
	day to day activities. The work done as follows:
	a) Renovation and upgrading of all the three messes which includes purchase of
	refrigerators and new set of utensils, maintenance of RO system and water purifier for
	clean drinking water, fly and mosquito repellent system, coolers and refrigerators.
	b) Maintainance of facilities for table tennis, chess and carom.
	c) Maintenance of lawn tennis court, basket ball and volley ball courts.
	d) Renovation work of Toilets and Varardahs of hostels.
17	Acted as Stock Verification Officer to check the inventory Items of three labs of Project
	Coordinator (Pig) [Letter No 13-3/2011-2012/P&S dated 05-03-2012]
18	Acted as Committee Member for organizing "Hindi NibandPratiyogita" during Hindi
	Pakhwara-2010
19	Acted as Member of Monitoring Cell on Ragging constituted in pursuance of UGC
	regulations
20	Pashu Vigyan Mela and Pradarshini: Participated actively in the preparation of Pashu
	Mela and Vigyan Pradarshini-2010, -2011.
21	Chairman: Acted as chairman of Record Keeping Committee during Pashu Mela and
	Vigyan Pradarshini-2010.
22	Visited SSB, Srinagar, Garhwal during 16-18, December, 2010 to carry out disease
	investigation and to advise on management and health aspect of horses.
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23	Acted as MEMBER of Food and Refreshment Committee for Organizing the XI National
	Conference of Animal Breeding and Genetics held at IVRI, Izatnagar on January 20-
	21,2011.
24	Attended Rajbhasa Meeting chaired by Director on 21-12-2011[Letter no 8-2/2003-Hindi,
	dated 16-12-2011]
25	Committee for Judging Best Room Award on 20-01-2012 in Dhanwantri Hostel [Letter
	no F.39-12/2006.E-I dated 28-12-2011]
26	Acted as CHAIRMAN of Purchase Committee for Purchase of equipments for the
	polyclines from local market.
27	Acted as MEMBER of Committee to organize Hindi Chetna Mass in month of September
	[Letter No. 8-3/2013/Hindi dated 23-07-2014].
28	Acted as MEMBER of Sports Organization Committee for smooth organization of Games
	and Sports on 124 Foundation Day Celeberation of IVRI from 9-11, December, 2013
29	Faculty Member- I have been a faculty member of the discipline of Veterinary Surgery in
	IVRI Deemed University.
30	Member Board of Studies: I have been nominated as Member Board of Studies, Faculty of
	Veterinary and Animal Sciences, Rajasthan University of Veterinary and Animal
	Sciences, Bikaner, Rajasthan.

i)Tr	ainings Imparted			
1	Short Course on Radiology: (13-09-2010 to 12-10-2010)			
	Lectures and practical demonstrations on the following topics were given			
	Radiographic positioning			
	Radiation hazards			
	➤ Demonstration of latest techniques in Veterinary Surgery and Radiology			
	(endoscopy, laparoscopy, microsurgery etc)			
2	Short Course on Fracture management in Animals: (22-11-2010 to 21-12-2010)			
	Lectures and practical demonstrations on the following topics were given			
	➤ Application of Plaster cast.			
	Application of Modified Thomas Splints.			
	Technique of tendon suturing and grafting			
	Principles of external fixation of fractures.			
	Management of lameness and foot disorders			
3	National Diploma on Equine Husbandry, Medicine and Surgery: (14-02-2011 to 17-			
	02-2011)			
	Lectures and practical demonstrations on the following topics were given			
	➤ Handling of endoscope and diagnostic procedures			
	Application of plaster of Paris cast and Thomas splint			
4	Training Programme to Veterinary Dressers: (24-11-2010 to 03-12-2010) Lectures and			
	practical demonstrations on the following topics were given			
	First aid treatment to a lame horse			
5	Short Course on Laparoscopic Surgery in Small Animal practices: 10-10-2011 to 24-			
	10-2011)			
	➤ Lectures and practical demonstrations on the following topics were given			
	➤ Introduction to Minimal Access Surgery			
	➤ Introduction to Instruments and Equipments			
	➤ Instruments Design (Lab hands on training with the use of endotrainer)			
	 Presentation on Operative Laparoscopic Instruments 			
	Presentation on Sterilization of Laparoscopic Instruments			

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	 Practice of Access Techniques and Diagnostic Laparoscopy
	 Diagnostic Laparoscopy/Viewing of Abdominal Organs
	Laparoscopic procedures and Techniques for Laparoscopic Examination
	Laparoscopic Ancillary diagnostic procedures
	 Laparoscopic guided organ biopsy
	Laparoscopy in animal physiology
	Laparoscopic sterilization in male and female dogs
6	Short Course on Fracture Management in Animals: (01-11-2011 to 30-11-2011)
	Lectures and practical demonstrations on the following topics were given
	Application of Plaster cast.
	Management of lameness and foot disorders
7	National Diploma on Equine Husbandry, Medicine and Surgery: (13-02-2012 to 15-
	02-2012)
	Lectures and practical demonstrations on the following topics were given
	Handling of endoscope and diagnostic procedures
	Application of plaster of Paris cast and Thomas splint
8	Training Course on Radiology and Ultrasonography to Field Veterinarians: (12-03-
	2012 to 26-03-2012)
	Lectures and practical demonstrations on the following topics were given
	 Restraint/Anaesthesia and radiographic positioning
	 Demonstration of radiographic positioning
9	Training Course on Ultrasonography: (19-04-2012 to 28-04-2012)
	Lectures and practical demonstrations on the following topics were given
	Ultrasonography of ligaments and tendons
10	National Diploma on Equine Husbandry, Medicine and Surgery: (11-02-2013 to 13-
	02-2013)
	Lectures and practical demonstrations on the following topics were given
	Handling of endoscope and diagnostic procedures
	Application of plaster of Paris cast and Thomas splints.
11	Training Course on Anaesthesia and Pain Management: (01-10-2014 to 31-10-2014)
	Lectures and practical demonstrations on the following topics were given
	Anaesthetic emergencies and their management
	Anaesthsiain Zoo and wild animals
	Epidural anaesthsia at various sites with local anaesthetics
	Spinal anasthesia: Practice and demonstration
	Paravertebral block ans anaesthesia of flank
	Intravenous regional anaesthsia
12	Training Course on Radiology: (02-09-2013 to 01-10-2013)
	Lectures and practical demonstrations on the following topics were given
	X-ray machine and Accessories
	➤ Demonstration of latest techniques in vterinary surgery and radiology (Endoscopt,
	laparoscopy, microsurgery etc)
13	Training Course on Fracture Management in Animals: (11-11-2013 to 10-12-2013)
	Lectures and practical demonstrations on the following topics were given
	Application of plaster cast
	Application of modified thomas splint
	 Technique of tendon suturing and grafting
	Selection of fracture fixation techniques
	Management of lamenes and foot disorders
14	National Diploma on Equine Husbandry, Medicine and Surgery: (10-02-2014 to 12-

	02-2014)
	Lectures and practical demonstrations on the following topics were given
	➤ Handling of endoscope and diagnostic procedures
	Application of plaster of Paris cast and Thomas splints.
15	Training Imparted to Gujrat Field Veterinary Officers: (June 17, 2019 to June 22,
	2019)
	Lectures and practical demonstrations on the following topics were given
	Management of tendon injuries in animals
16	Training Imparted to the participants of ICAR-Sponsored Winter School:(November
	1, 2019 to November 21, 2019)
	Lectures and practical demonstrations on the following topics were given
	➤ Tissue engineering using stem cells for abdominal wall surgery in animals.
	> Synthetic Cell Adhesion Peptides (CAPs) fabricated biomaterials for tissue
	engineering applications.
17	Training Course on Fracture Management in Animals: October 1, 2019 to 31 October,
	2019).
	Lectures and practical demonstrations on the following topics were given
	Principles and Techniques of External Fixation of Fractures.
	Management of lameness and foot disorders.
18	National Diploma on Equine Husbandry, Medicine and Surgery: (17-02-2020 to 19-
	02-2020)
	Lectures and practical demonstrations on the following topics were given
	Handling and application of laparoscope for diagnostic procedures.
	> X-Ray accessories and handling of X-Ray machine, positioning and taking of
	radiographs of different body parts, dark room procedures.
19	National Diploma on Equine Husbandry, Medicine and Surgery: (08-02-2022)
	Lectures and practical demonstrations on different topics were given

11. Teaching and Research

a) Teaching

i). Students (PG & PhD) guided

	1). Betteents (1 of et 1 in 2) guitet				
i. As M	i. As Major Advisor				
List of s	tudents G	uided (MVSc)			
S.No.	Degree	Title of thesis	Student	Year	
1	MVSc	Acellular and glutaraldehyde preserved	R. Ramesh	2000	
		tendon allografts for reconstruction of flexor			
		tendon in bovines			
2	MVSc	An empirical study on the management of	Naveen Kumar	2002	
		peritendinous adhesions: Comparative			
		evaluation of hyaluronic acid, autogenous			
		17reeding, papain and ultrasonic therapy			
3	MVSc.	Acellular and glutaraldehyde preserved	Jagsir Singh	2004	
		biomaterials of porcine origin for the			
		reconstruction of abdominal wall defects in			
		rabbits and their clinical applications			
4	MVSc.	Laparoscopic sterilization in male dogs	Anbu Raja	2006	
5	MVSc	Acellular buffalo small intestinal submucosa	Vineet Kumar	2010	

		and fish swim bladder for the repair of full		
6	MVSc	thickness skin wound in rabbits Tissue engineered fish swim bladder scaffold seeded with bone marrow derived	Remya V.	2012
		mesenchymal stem cells of rat and goat for dermal reconstruction		
7	MVSc	Bioengineered collagen scaffolds for the repair of abdominal wall defects in rats	Mohsina A.	2013
8	MVSc	Bio-engineered diaphragm matrices with and without mouse embryo fibroblasts for the repair of large full thickness skin defects in rats	Arundeep P. S.	Not completed
9	MVSc	Development and evaluation of bovine reticulum derived extracellular matrix for the repair of full thickness skin wounds in rats	Anwarul Hasan	2015
10	MVSc	Clinical application of acellular matrix derived from bubaline diaphragm and caprine rumen for repair of abdominal wall defects in veterinary patients	Harendra Singh Rathore	2018
11	MVSc	Evaluation of anti microbial peptide— impregnated chitosan hydrogel for the management of infected burn wounds in rats	Atul Ganesh	Under Progress
		suided (PhD)		
S.No.	Degree	Title of thesis	Student	Year
1	Ph.D.	Biocompatibility testing of acellular dermal grafts in a rabbit model: An <i>In vitro</i> and <i>in vivo</i> study.	Sanjay Purohit	2008
2	Ph.D.	Development of bioengineered 3-D acellular dermal matrix for reconstruction of full thickness skin wounds in rats	Anil Kumar Gangwar	2012
3	Ph.D.	Bioenginered scaffolds for reconstruction of abdominal wall defect in a rabbit model	Remya V.	2016
4	Ph.D.	Development of 3-D 18 reeding 18 a 18 ed scaffolds from bubaline rumen and gall bladder for the regeneration of full thickness skin wounds in diabetic rats	Ajit Kumar Singh	2017
5	PhD	Reconstruction of full thickness skin wounds in rats by cell adhesion peptide (CAP) fabricated bioengineered caprine forestomach matrix (CFM)	P.D.S. Raghuvansi	2018
6	PhD	Characterization of biomaterial scaffolds derived from caprine forestomach and evaluation in clinical cases.	Mohar Singh	2022
7	PhD	Evaluation of Strontium Titanate Ceramic and Fish Scale derived Hydroxyapatite for the repair of critical size bone defect in rabbits.	Shiv Kumar Sidar	Under Progress

ii. As Co-major advisor

List of	List of students guided as Co-Guide (MVSc Thesis)				
S.N	Degree	Title of thesis	Student	Year	
0.					
1	MVSc	Biomaterials in repair of abdominal wall	A.K.	2002	
		defects in rabbits and their clinical application	Gangwar		
2	MVSc	Acellular allogenic tendon and medial patellar	Pankaj Gupta	2002	
		ligament for the reconstruction of superficial			
		digital flexor 19reedi n buffalo calves		2001	
3	MVSc	Glutaraldehyde preserved bovine pericardium	Kailash	2004	
		and diaphragm in the repair of abdominal wall	Baboo		
		defects: An experimental study with and			
1	MVSc	without ultrasound therapy in rabbits. General anaesthesia in canine patients.	N. K. Verma	2005	
5		1			
3	MVSc	Acellular bovine pericardium with and without	Prakash D.	2005	
		glutaraldehyde treatment and polypropylene mesh for the reconstruction of abdominal wall			
		defects in rabbits.			
6	MVSc	Evaluation of laparoscopic and ultrasound	Ajith P.	2006	
O	IVI V BC	guided liver biopsy techniques and	71,111111	2000	
		laparoscopic ancillary diagnostic procedures in			
		dogs.			
7	MVSc	<i>In-vitro</i> and <i>in-vivo</i> biocompatibility of	HonjonePerm	2006	
		crosslinked bovine pericardium and diaphragm	e		
8	MVSc	Biocompatibility of crosslinked pericardium	Amit Kumar	2009	
		and diaphragm of caprine origin.			
9	MVSc	Biocompatibility determination of acellular	J. Devrathnam	2010	
		aortic matrix of buffalo origin.			
10	MVSc	Repair of cutaneous wound using acellular	Kaarthick D.	2012	
		pericardium and diaphragm of buffalo origin	T.		
		seeded with mouse embryo fibroblast cells in a			
1.1	3.43.70	rat model	X71 (1 T7)	2012	
11	MVSc	Study on epididymal secretion vis-à-vis	Yhuntilo Kent	2012	
		morphological evaluation (Testis, epididymis and seminal vesicle0 in buffalo <i>in-vitro</i>			
12	MVSc		Chethan	2012	
12	IVI V SC	Effect of Interferon- <i>t</i> , poly unsaturated fatty acids and plant extracts on PGE2 and nitric	Sharma	2012	
		oxide production by buffalo endometrial	Sharma		
		stromal cells			
13	MVSc	Fibroblast cell therapy with and without	Ashok Kumar	2013	
		bovine collagen shet for the healing of full	Balwada		
		thickness cutaneous wounds in rats			
14	MVSc	Efficacy of Mesenchymal stem cells with or	Sandeep	2013	
		without chitosan for full thickness skin	Kumar		
		wounds in rats			
15	MVSc	Evaluation of <i>Dolichos biflorus</i> for	Azhar Shuaib	2014	
		ameliorating urolihiasis in rats	Batoo		
16	MVSc	Bioengineered porcine small intestine and	Sangeetha P	2015	

	1	24 1 24 4 1 1 4		
		cornea with and without mesenchymal stem		
		cells for the repair of corneal defects in rabbits		
17	MVSc	Evaluation of cholecyst derived-extracellular	Poonam	2015
		matrix for reconstruction of full thickness skin	Shakya	
		wounds in rats		
18	MVSc	Evaluation of oncolytic gene construct and	Divya Mohan	2015
		chemotherapy with paclitaxel for management		
		of canine mammary tumour		
19	MVSc	Evaluation of omasum derived extracellular	Priya Singh	2015
		matrix for repair of full thickness skin wound		
		in rats		
20	MVSc	Development and evaluation of bovine	Anwarul	2015
		reticulum derived extracellular matrix for the	Hasan	
		repair of full thickness skin wounds in rats.		
21	MVSc	Effect of constant rate infusion of anaesthetic	Shivaraju S.	2016
		adjuvents on total intravenous 20reeding20a of	J	
		horses		
22	MVSc	Effect of Aegle, Marenelos and	Rupali	2016
		MurrayaKoenigii leaves on the antibacterial	Rautela	
		potential and serum antioxidant in repeat		
		20reeding cows with endometritis		
23	MVSc	Studies on detection and treatment of	Sushobit	2016
		antisperm antibodies in repeat breeding cattle	Kumar Singh	
24	MVSc	Evaluation of prostate and prostate specific	Anjali	2017
		biomarkers in health and disease in intact dogs	Gautam	
25	MVSc	Designing and clinical application of	Azam Khan	2021
		cannulated cancellous cap tp prevent		
		intrmedullary pin angulation in dogs		
26	MVSc	Studies on canine UTI with special reference	EnshaLomiya	2022
		to Struvite calculi and its mitigation by urine	M A	
		pH modifiers		
	•		•	•

List of	List of students guided as Co-Guide (PhD Thesis)					
S.	Degree	Title of thesis	Student	Year		
No.						
1	Ph.D.	Role of embryonic stem cells for osteogenesis	Bhagyashree	2011		
		in the repair of bone defects in a rabbit model	K. Bhadane			
2	PhD	Evaluation of bone marrow derived	Shivakumar	2011		
		mesenchymal stem cells of different sources	M.U.			
		on osteogenesis in rabbit model.				
3	Ph.D.	Surgico-chemo-immuno-therapeutic	Dileep Kumar	2011		
		management and expression of some	K. M.			
		prognostic makers in canine mammary tumour				
4	Ph.D.	Biodynamic measures to evaluate ascites and	M. Saravanan 2012			
		its catalytic therapy in dog				
5	Ph.D.	Immunomodulatory and antioxidant potential	Tarun K.	2012		
		of certain herbal and homeopathic drugs in	Sarkar			
		canine demodicasis				
6	Ph.D.	Development of bioengineered 3-D acellular	Dayamon D.	2014		

		dermal matrices seeded with mesenchymal stem like cells for dermal wounds in rats	Mathews	
7	Ph.D.	Mesenchymal stem cell construct with or without growth factors for osteogenesis in critical sized bone defect in rabbit model	Ninu A. R	2014
8	Ph.D.	Stratigic approach for remylination in experimental rat model and its application in canine demylinating neuropathies	Sumit Mahajan	2015
9	Ph.D.	Studies on intramammary affections and allied diseases of YAK (<i>Poephagous 21 reeding</i>), MITHUN (<i>Bos frontalis</i>) and Cattle in Sub Himalayan North eastern region of Arunachal Pradesh	Suman Biswas	2015
10	Ph.D.	Mutifaceted canine babesiosis: Incidence and its advanced therapeutic approach	Biju P Habeeb	2015
11	Ph.D.	Transcription profile of prostaglandin and steroid biosynthetic pathway genes and utero-ovaterian function in buffaloes with endometritis	Chethan Sharma	2015
12	Ph.D.	Dr M. Saravanan, Roll No. 1273 (Veterinary Medicine)	M. Saravanan	2015
13	Ph.D.	Dr. Sujit Kumar Behra, Roll No. 1596 (Veterinary Public Health)	Sujit Kumar Behra	2015
14	Ph.D.	Dr.Ajit Singh Mahla, Roll No. P-1704 (Veterinary Gynecology and Obstetrics)	Ajit Singh Mahla	2015
15	Ph.D.	Seroprevalence and risk factors associated with leptospirosis in dogs, pigs and human risk groups	Sujit Kumar Behera	2015
16	PhD	Epidemiological study in dogs and goats, and role of antioxidants in experimental diabetes	Ranbir Sigh Jatav	2015
17	PhD	Effect of PDGF-b gene activated acellular matrix and stem cell transplantation	Tamilmahan P.	2016
18	PhD	Evaluation of chitosan and porcine SIS matrix seeded with rat mesenchymal stem cells and m-EGF for the repair of full thickness burn wound in rat model	Sangeetha P.	2017
19	Ph.D.	Molecular epidemiology and immunopathology of subclinical mastitis in buffaloes with particular reference to Staphylococcus aureus infection	Ricky Jhambh	2017
20	PhD	Development of plate-interlocking nail construct for the repair of diaphyseal femur fractures in dogs	Sherin B Sarangom	2018
21	PhD	Evaluation of mesenchymal stem cells with conditioned media and m-EGF for regeneration of liver tissue after partial hepatectomy	Divya Mohan	2018

22	PhD	Hepatoprotective efficacy of nano-structured Catechin encapsulated in Chitosan.	Ravi Shankar Kumar Mandal	2019
23	PhD	Epidemiology and development of diagnostic assay for porcine circovirus infection	Rajesh J. B.	2019
24	PhD	Epidemiology and clinico-therapeutic studies on Flea Allergy dermatitis and Pediculosis in goats	Ajith Y.	2019
25	PhD	Epidemology and Pediculosis in buffalo and pigs and Therapeutic study in buffaloes	Madhesh E	2019
26	PhD	Clinico-epidemiology of canine ectoparasitism with evaluation of therapies and antioxidants in Flea allergy dermatitis and Demodicosis"	Alok Kumar Chaudhary	2020
27	PhD	Green synthesis and characterization of <i>Azadirachta indica</i> mediated Selenium Nanoparticles for <i>in vitro</i> Acaricidal effect	Arvind Kumar Das	2021
28	PhD	Stem cell laden nanomaterial-scaffold with and without growth factor for bone regeneration in rabbit"	Kalaiselvan E.	2021
29	PhD	Studies on the hepatoprotective effect of mesenchymal stem cells with platelet-rich plasma and HGF on liver cirrhosis in the rat.	Shivaraju S.	2021
30	PhD	Study of bone marrow stimulating property of n-acetylcysteine and desmopressin for therapeutic management of aplastic pancytopenia associated with canine hemoprotozoan diseases	Narayani Yadav	2022
31	PhD	Not yet decided	Sonam Bhat	2022
32	PhD	Stem cell laden Nano-Neural scaffolds with or without growth factors for nerve regeneration in rats	Mamta Mishra	2022

iii. Recognition to students guided

Recogni	Recognition to students Guided (MVSc)			
S.No.	Name of Student	Recognition		
1	R. Ramesh	Working as Field Veterinarian in Tamil Nadu State		
		Elected member of VETERINARY COUNCIL OF INDIA		
2	Naveen Kumar	Working in Private Entrepreneurship		
3	Jagsir Singh	Completed his DVM and now working as Practitioner in		
		CANADA		
4	Anbu Raja	Working as Field Veterinarian in Tamil Nadu State		
5	Vineet Kumar	Working as Senior Assistant Professor in Veterinary College,		
		Meerut (UP)		
6	Remya V.	Working as Assistant Professor in Veterinary College, Pookot		
		(Kerala)		
7	Mohsina A.	Selected as Assistant Professor in Veterinary College, Pookot		
		(Kerala). Now working as Practitioner in SAUDI ARABIA		

8	Arundeep P. S.	Working as Manager in NATIONALIZED BANK
9	Anwarul Hasan	Working as Field Veterinarian in Uttar Pradesh State
10	Harendra Singh	Working as Field Veterinarian in Madhya Pradesh State
	Rathore	
11	Atul Ganesh	Persuing his MVSc degree at IVRI, Izatnagar
Recogni	tion to students Guide	d (PhD)
S.No.	Name of Student	Recognition
1	Sanjay Purohit	Working as Professor in Veterinary College, Mathura (UP)
2	Anil Kumar	Working as Professor and Head in Veterinary College, Faizabad
	Gangwar	(UP). Former Registrar and Deputy Director Research, Acharya
		Narendra Deva University of Agriculture and Technology,
		Kumarganj, Faizabad (UP).
3	Remya V.	Working as Assistant Professor in Veterinary College, Pookot
		(Kerala)
4	Ajit Kumar Singh	Working as Assistant Professor in Veterinary College, Meerut
		(UP)
5	P.D.S.	Working as Associate Professor in Veterinary College, Mhow
	Raghuvansi	(MP)
6	Mohar Singh	Working as Field Veterinarian in Madya Pradesh State
7	Shiv Kumar Sidar	Working as Field Veterinarian in Chatishgarh State

ii). Teaching experience and courses taught during last 12 years

Sl.	Year	No. and title of course	Credit
No.			hour(s)
1	2010	VSR-605 Neuro Surgery	1
		VSR-606 Neuro Surgery	1
		VSR-601 Plastic and Reconstructive Surgery	1
		VSR-602 Plastic and Reconstructive Surgery	1
		VSR-509 GI tract Surgery	1
		VSR-510 GI tract Surgery	1
		VSR-555 Special Problem	1
		VSR-600 Seminar	1
		VSR-699 Research	15
2	2011	VSR-605 Neuro Surgery	1
		VSR-606 Neuro Surgery	1
		VSR-601 Plastic and Reconstructive Surgery	1
		VSR-602 Plastic and Reconstructive Surgery	1
		VSR-509 GI tract Surgery	1
		VSR-510 GI tract Surgery	1
		VSR-555 Special Problem	1
		VSR-600 Seminar	1
		VSR-699 Research	15
3	2012	VSR-501 General Surgery	1
		VSR-502 General Surgery	1
		VSR-601 Plastic and Reconstructive Surgery	1
		VSR-602 Plastic and Reconstructive Surgery	1
		VSR-509 GI tract Surgery	1
		VSR-510 GI tract Surgery	1

VSR-505 Special Problem 2			VCD 555 Crasial Droblem	1
VSR-690 Seminar			VSR-555 Special Problem	1
VSR-699 Research			1	
VSR-799 Research				
VSR-501 General Surgery				
VSR-601 Plastic and Reconstructive Surgery		2012		
VSR-601 Plastic and Reconstructive Surgery	4	2013		
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VSR-509 GI tract Surgery 1				
VSR-510 GI tract Surgery 1				
VSR-555 Special Problem				1
VSR-600 Seminar				1
VSR-699 Research 15				1
S 2014 VSR-501 General Surgery 1 VSR-502 General Surgery 1 VSR-601 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-509 Gl tract Surgery 1 VSR-509 Gl tract Surgery 1 VSR-510 Gl tract Surgery 1 VSR-614 Clinics 1 VSR-699 Research 15 VSR-699 Research 15 VSR-699 Research 15 VSR-691 Plastic and Reconstructive Surgery 1 VSR-601 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-509 Gl tract Surgery 1 VSR-509 Gl tract Surgery 1 VSR-510 Gl tract Surgery 1 VSR-699 Research 15 VSR-699 Research 15 VSR-699 Research 15 VSR-691 Plastic and Reconstructive Surgery 1 VSR-691 Plastic and Reconstructive Surgery 1 VSR-691 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-604 Plastic and Reconstructive Surgery 1 VSR-605 Gl tract Surgery 1 VSR-606 Special Problem 2 VSR-606 Special Problem 2 VSR-609 Research 15 VSR-411 General Surgery, Anaesthesiology and Radiology (Under Graduate Course) VSR-412 General Surgery, Anaesthesiology and Radiology (Under Graduate Course) VSR-412 General Surgery, Anaesthesiology and Radiology (Under Graduate Course) VSR-600 Research 15 VSR-412 General Surgery, Anaesthesiology and Radiology (Under Graduate Course) VSR-600 Research 15 VSR-600 Research 15 VSR-600 Research 15 VSR-600 Research 15 VSR-600 R				
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VSR-601 Plastic and Reconstructive Surgery	5	2014	VSR-501 General Surgery	1
VSR-602 Plastic and Reconstructive Surgery				1
VSR-509 GI tract Surgery				1
VSR-510 GI tract Surgery			VSR-602 Plastic and Reconstructive Surgery	1
VSR-614 Clinics				1
VSR-555 Special Problem				1
VSR-699 Research			VSR-614 Clinics	1
6 2015 VSR-501 General Surgery 1 VSR-502 General Surgery 1 VSR-601 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-509 GI tract Surgery 1 VSR-509 GI tract Surgery 1 VSR-510 GI tract Surgery 1 VSR-414 Clinics (Audit) 1 VSR-555 Special Problem 1 VSR-699 Research 15 VSR-799 Research 15 VSR-799 Research 1 VSR-501 General Surgery 1 VSR-502 General Surgery 1 VSR-601 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-509 GI tract Surgery 1 VSR-510 GI tract Surgery 1 VSR-510 GI tract Surgery 1 VSR-666 Special Problem 2 VSR-669 Research 15 VSR-699 Research 15 VSR-799 Research 15 VSR-799 Research			VSR-555 Special Problem	1
VSR-502 General Surgery 1			VSR-699 Research	15
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VSR-509 GI tract Surgery				1
VSR-510 GI tract Surgery 1			VSR-602 Plastic and Reconstructive Surgery	1
VSR-414 Clinics (Audit) 1			VSR-509 GI tract Surgery	1
VSR-555 Special Problem				1
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7 2016 VSR-501 General Surgery 1 VSR-502 General Surgery 1 VSR-601 Plastic and Reconstructive Surgery 1 VSR-602 Plastic and Reconstructive Surgery 1 VSR-509 GI tract Surgery 1 VSR-510 GI tract Surgery 1 VSR-414 Clinics (Audit) 1 VSR-666 Special Problem 2 VSR-699 Research 15 VSR-799 Research 15 VSR-411 General Surgery, Anaesthesiology and Radiology (Under Graduate Course) 2 VSR-412 General Surgery, Anaesthesiology and Radiology (Under Graduate Course) 2			VSR-699 Research	15
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VSR-509 GI tract Surgery VSR-510 GI tract Surgery VSR-414 Clinics (Audit) VSR-666 Special Problem VSR-699 Research VSR-799 Research VSR-799 Research VSR-411 General Surgery, Anaesthesiology and Radiology (Under Graduate Course) VSR-412 General Surgery, Anaesthesiology and Radiology (Under Graduate Course)			VSR-601 Plastic and Reconstructive Surgery	1
VSR-510 GI tract Surgery VSR-414 Clinics (Audit) VSR-666 Special Problem VSR-699 Research VSR-799 Research SR-799 Research VSR-411 General Surgery, Anaesthesiology and Radiology (Under Graduate Course) VSR-412 General Surgery, Anaesthesiology and Radiology (Under Graduate Course)			VSR-602 Plastic and Reconstructive Surgery	1
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(Under Graduate Course) VSR-412 General Surgery, Anaesthesiology and Radiology 2 (Under Graduate Course)			VSR-799 Research	15
VSR-412 General Surgery, Anaesthesiology and Radiology 2 (Under Graduate Course)	8	2017	VSR-411 General Surgery, Anaesthesiology and Radiology	2
(Under Graduate Course)			,	
				2
VSR-501 General Surgery 1			(Under Graduate Course)	
			VSR-501 General Surgery	1

		VSR-502 General Surgery	1
		VSR-601 Plastic and Reconstructive Surgery	1
		VSR-602 Plastic and Reconstructive Surgery	1
		VSR-509 GI tract Surgery	1
		VSR-510 GI tract Surgery	1
		VSR-699 Research	15
		VSR-799 Research	15
9	2018	VSR-411 General Surgery, Anaesthesiology and Radiology	2
,	2010	(Under Graduate Course)	2
		VSR-412 General Surgery, Anaesthesiology and Radiology	2
		(Under Graduate Course)	2
		VSR-601 Plastic and Reconstructive Surgery	1
		VSR-602 Plastic and Reconstructive Surgery	1
		VSR-616 Clinics	1
		VSR-707 Advanced Orthopaedics	1
		VSR-707 Advanced Orthopaedics VSR-708 Advanced Orthopaedics	1
		*	1
		VSR-501 General Surgery VSR-502 General Surgery	1
		VSR-414 Clinics (Audit)	1
		VSR-666 Special Problem	2
		VSR-600 Special Problem VSR-699 Research	15
10	2019	VSR-799 Research	15
10	2019	VSR-411 General Surgery, Anaesthesiology and Radiology (Under Graduate Course)	2
		VSR-412 General Surgery, Anaesthesiology and Radiology	2
		(Under Graduate Course)	2
		VSR-601 Plastic and Reconstructive Surgery	1
		VSR-602 Plastic and Reconstructive Surgery	1
		VSR-707 Advanced Orthopaedics	1
		VSR-708 Advanced Orthopaedics	1
		VSR-501 General Surgery	1
		VSR-502 General Surgery	1
		VSR-666 Special Problem	2
		VSR-799 Research	15
11	2020	VSR-411 General Surgery, Anaesthesiology and Radiology	2
11	2020	(Under Graduate Course)	2
		VSR-412 General Surgery, Anaesthesiology and Radiology	2
		(Under Graduate Course)	
		VSR-601 Plastic and Reconstructive Surgery	1
		VSR-602 Plastic and Reconstructive Surgery	1
		VSR-707 Advanced Orthopaedics	1
		VSR-708 Advanced Orthopaedics	1
		VSR-501 General Surgery	1
		VSR-501 General Surgery VSR-502 General Surgery	1
		VSR-666 Special Problem	2
		VSR-799 Research	15
12	2021	VSR-411 General Surgery, Anaesthesiology and Radiology	2
14	2021	(Under Graduate Course)	
		VSR-412 General Surgery, Anaesthesiology and Radiology	2
		Von-712 Ocheral Burgery, Anacstricshology and Kadhology	4

(Under Graduate Course)	
VSR-601 Plastic and Reconstructive Surgery	1
VSR-602 Plastic and Reconstructive Surgery	1
VSR-501 General Surgery	1
VSR-502 General Surgery	1
VSR-666 Special Problem	2
VSR-799 Research	15

b) Research

i) Concept, process, product, technology, and patent, etc

CONCEPTS

- 1. There is paucity of biomaterials to be used in veterinary patients in India. The available biomaterials which are used in human patient are very costly and some times not available as they are to be imported. So the concept of development of biomaterials from abbatoir for veterinary patients was established for the first time in India.
- 2. Injury to tendon and ligaments are common in pack/farm animals. No treatment was available when tedon is severed and having large defect. Concept was developed to use carbon fibres and acellular tendon grafts for the reconstruction of tendon/ligaments in animals.
- 3. Healing of tendon aftr surgery leads to severe peritendinous adhesions with the surroundings which lead to restriction of movement of tendon. Earlier proteolytic enzymes and physiotherapy was used to reduce adhesions with limited success. A concept was devloped to use autogenous synovial fluid from the contralateral limb to prevent/reduce peritendinous adhesions in veterinary patients.
- 4. To diagnose the pathology of abdominal organs, earlier laparotomy (major operation) was performed. A concept was developed for application of laparoscopy/endoscopyin clinical diagnosis and therapeutics ith minimal invasivness.
- 5. To provide low cost, easily available indigenous medicine for treatment of vtrinary patients a concept of collection, documentation and validation of Indigenous Technical Knowledge (ITK) was developed.
- 6. For postoprative rehabilitation of various ailments. viz. tendon injury, hind quarter weakness, arthritis and fracture healing a concept for use of therapeutic ultrasound and acupuncture in different species of animals was developed.
- 7. Repair of lage bone defects in animals is a major challenge for veterinary surgeon. A new concept was developed using mesenchymal stem cells construct for repair of larg bone defects.
- 8. Large wounds in animals take long time to heal with conventional treatments. A concept was developed for usin 3-D acellular scaffolds either seeded with mesenchymal stem cells (MSCs) or fibroblasts for earlier healing of wounds.

- 9. As there was complete ban by SPCA of using large experimental animals for teching/reserch, a new concept was develoed involving 2-3 postgradute students while performing surgery in clinical cases. This gives necessary experience, exposure and confidence to younger surgeons in handling surgical cases.
- 10. For the management of canine mammary tumours a concept of wholistic approach to treat cancer patints was developed. This includes combination of surgical and chemotherapy along with use of diagnostic and prognostic markers in identifying neoplasms.
- 11. A new concept of *in-vitro* and *in-vivo* determination of biocompatibility of biomaterials was developed before their application in clinical cases. This helps in screening the materials before testing in large animals and thus saving time, cost and reducing the number of large animals for testing.

PROCESS

- 1. In Indiathere are about 4000 registeredslaughteredhouses and more than 25,000 unregisteredpremises in domesticmarketwhere the cattle and buffaloes are slaughtered. The abattoir by-products can beeffectivelyutilized as source of extra cellular matrices (ECM) scaffoldsafterpropertreatment and processing. Process has been developed for preparation of acellular matrix by removing their cellular components. In decellularization techniques different biological detergents and enzymes for removing cellular components were used leaving a material composed of extra cellular matrix (ECM). The abbatoirby-products (biomaterials) include diaphragm, pericardium, gall bladder, intestine, amnion, aortic matrix and urinary bladder of different species of animals.
- 2. For the first time in India process has been developed for use of Carbon Fibres in tendon reconstruction (number of filaments per strand and mode of application). The technology was displayed at Krishi Expo-2000, National Livestock and Poultry Show, Organised by India Trade Promotion Organisation at Pragati Maidan, New Delhi and at Tech Vision 2002 held at Lucknow. It has been also published in ICAR DARE Report 2002 as a Success Story.
- 3. A protocol has been developed to make tendon and medial patellar ligament grafts acellular. Successful use of acellular graft for reconstruction of tendon defect in bovines (cattle and buffalo both) was achieved and the technology for their use in tendon reconstruction was standardized.
- 4. Process has been developed for preparation of acellular dermal matrix from skin of different species of animals. Skin from different species of animal's viz., rabbit, porcine, caprine, ovine and bovine were used. Protocols for de-epithelization using combination of enzymes and chemicals were optimized. After de-epithelization the acellular dermal matrix was prepared using different anionic and non-ionic biological detergents with different pH, concentration and time intervals. Conditions were optimized for preparation of complete acellular dermal matrix.
- 5. The technical detail of laparoscopy examination of visceral organs was standardized in different species of animals. A new technique i.e. laparoscopic assisted tube cystotomy using Foley's catheter was developed for treating the clinical cases of complete urinary obstruction in male goats. Technique for laparoscopic-guided liver biopsy was

- standardized and it was found more precise, easy and diagnostically useful procedure as compared to ultrasound guided biopsy. Three laparoscopic sterilization techniques in female dogs and two laparoscopic sterilization techniques in male dogs were standardized.
- 6. A new training method was developed for training the postgraduate students and veterinarians using endotrainer for hand-eye coordination exercises as simulation of laproscopy.
- 7. The dose and duration of therapeutic ultrasound therapy has been standardized for various ailments. viz. Tendon injury, hind quarter weakness, abdominal wall defects, arthritis and fracture healing in experimental animals and successfully applied in clinical cases and are being regularly in use for post operative rehabilitation.
- 8. Process has been developed for preparation of MSC-Ceramic construct used for repair of critical size long bone fracture defect. The bone marrow from rabbit was collected and mesenchymal stem cells (r-BMSC) were isolated. The osteogenic effect of mesenchymal stem cell-bioceramic construct (MSC-Ceramic construct) was evaluated in repair of 30 mm critical size bone defect. Radiological studies suggested that the osteogenesis and osseous callus formation to bridge the bone defect (gap) was faster and organized in the stem cell construct group of animals.
- 9. Process for preparation of 3-D biodegradable dermal matrices for tissue engineering reconstructive surgery was developed. Acellular dermal matrices were used as scaffolds for *in-vitro* growth of the primary chicken embryo fibroblast (p-CEF), primary mouse dermal fibroblasts (p-MEF) and bone marrow derived mesenchymal stem cells (BMSC). Process was optimized in the laboratory and growth characteristics of the cells were studied in detailed.
- 10. Process has been developed for repair of abdominal wall defects using **carbon fibres** and **carbon sheet**. Their use in reconstruction (number of filaments per strand and mode of application) was developed. The process was successfully evaluated in more than 60 numbers of clinical cases. These implants were well tolerated and no untoward reactions were noticed.

PRODUCTS

- 1. Products from abbatoir waste were developed for use in reconstructive surgery. These abattoir by-products were effectively utilized as source of extra cellular matrices (ECM) scaffolds after proper treatment and processing. The biomaterials included diaphragm, pericardium, skin, rumen, reticulum, omsum, fish swim bladder, pericardium, aortic matrixand urinary bladder of different species of animals. These products are regularly in use in clinics and sucessfully tested in many clinical cases.
- 2. Acellular dermal matrix from rabbit skin: A product was developed from the skin of rabbit. After proper treatment and processing this developed acellular dermal matrix was used for repair of large abdominal/ventral/incisional/perineal hernias in cow calves, buffalo calves, equines and canines. A Patent was filed vide Patent Application No. # 2148DEL/2009 dated 15-10-2009. Title of the patent was "Method for Procesing and Preparation of Acellular Dermal Matrix of rabbit Origin". (Final Report DBT sponsored project No. BT/PR11270/MD/32/80/2008; Veterinary Practitioner, 13: 90-92)
- 3. Acellular dermal matrix from rabbit skin: A product was developed from the skin of

rabbit. After proper treatment and processing this developed acellular dermal matrix was used for repair of large abdominal/ventral/incisional/perineal hernias in cow calves, buffalo calves, equines and canines. A Patent was filed vide Patent Application No. # 2148DEL/2009 dated 15-10-2009. Title of the patent was "Method for Procesing and Preparation of Acellular Dermal Matrix of rabbit Origin". (Final Report DBT sponsored project No. BT/PR11270/MD/32/80/2008; Veterinary Practitioner, 13: 90-92)

- Acellular aortic matrix from buffalo species: A product was developed from the aorta of buffalo. After proper treatment and processing this developed acellular aortic matrix was used for repair of large abdominal hernias in cow calves, buffalo calves and goats (Veterinary Record, 170:392; Veterinary Practitioner, 13: 293-93; Australian Veterinary Journal AVJ-SC-134,RI,in press; Veterinary Practitioner,13:307-08). The product has also ben used for the repair of lage tracheal defect in a cow (Journal of Veterinary Advances, 2: 552-56).
- EDC crosslinked acellular aortic matrix: A product was developed from the aorta of buffalo. After proper processing and crosslinking with EDC [1-ethyl-3-(3-dimethyl aminopropyl)-carbodiimide] this developed acellular aortic matrix was used for repair of large inguinal hernias in equines

(Equine Veterinary Education, EVA-OA-2012-084,in press)

- Product from skin of different species of animals: Skin of rabbit, porcine, caprine, ovine and bovine was used for the preparation of acellular dermal matrix graft. Protocols for deepithelization using combination of enzymes and chemicals were optimized in different species of animals. After de-epithelization the acellular dermal matrix was prepared using different anionic and non-ionic biological detergents with different pH, concentration and time intervals. The technique was found extremely successful and is being regularly practiced in clinical cases. Acellular dermal matrices are regulary in use in clinics (Use of goat skin after proper processing and treatment, In Journal of Applied Animal Research, 41:117-120).
- Acellular dermal matrix from rat skin: A product was developed from the skin of rat. After proper treatment and processing this developed acellular dermal matrix was used for repair of ventral hernia in horses
 - (Equine Veterinary Science, XXX, 1-6, doi: 10.1016/j.jevs.2012.06.017).
- Therapeutic ultrasound and acupuncture in musculoskeletal and neurological disorders: Dose and duration of use of therapeutic ultrasound and acupuncture in musculoskeletal and neurological disorders in different species of animals was standardized for various ailments. viz. Tendon injury, hind quarter weakness, abdominal wall defects, arthritis and fracture healing and are being used for postoperative rehabilitation in animals.
 - (Journal of Veterinary Medicine Series A,53: 249-58; The Indian Journal of Animal Sciences, 78: 242-46; The Indian Journal of Animal Sciences, 77: 1273-76; The Indian Journal of Animal Sciences, 76: 292-95).
- Canine mammary tumours: Treatment protocols were developed for the management of CMT and are in clinical use. These include combination of surgical approach and chemotherapy. Some diagnostic and prognostic markers were also identified for canine mammary tumours.
 - (Journal of Applied Animal Research, **36**:103-108; The Indian Journal of Animal Sciences, 78: 1250-1253; Indian Journal of Canine Practices 3: 117-126; Phytomedica, 9: 37-50;

Journal of Canine Development and Research,1: 54-55; 3: 65-68; 3: 77-79; Indian Veterinary Medical Journal, 26: 163-166)

TECHNOLOGIES

- 1. The technology for the development of biomaterials for the reconstructive surgery from abbatoir waste was established for the first time in India. The abattoir byproductswereeffectivelyutilized as a source of extra cellular matrices (ECM) scaffoldsafterpropertreatment and processing. The technique was found extremely successful and is being regularly practiced in clinical cases. The technique has revolutionized the surgical approach to the management large defects in animals. The technique has already been tested in large number of cases sucessfully. *14(7):* 955-963 (Journal of Tissue Engineering and Regenerative Medicine (https://doi.org/10.1002/term.3055, Journal of Tissue Engineering and Regenerative Medicine (12): 1763-1778. (https://doi.org/10.1002/ term.3132, Equine Veterinary Education, EVE-OA-2012-084, In Press; Journal of Equine Veterinary Science, XXX, 1-6; Australian Veterinary Journal, AVJ-SC-134RI,In Press; Veterinary Record, 170: 392; Trends in Biomaterials and Artificial Organs, 22: 30-40.; Journal of Applied Animal Research, DOI:10.1080 /09712119.2012.73822; The Indian Journal of Animal Sciences, 78: 1207-1210; The Indian Veterinary Medical Journal, 28: 95-96; Journal of Canine Development and Research, 4: 43-46; Veterinary Practitioner, 4: 25-26; The Indian Journal of Animal Sciences, 71: 444)
- 2. The technology for the development of acellular rumen matrix from buffalo and goat was developed. The technique was found extremely successful and is being regularly practiced in clinical cases.

 (Trends in Biomaterials & Artificial Organs, 35(1), 57-64., Aceh Journal of Animal Science, 4(2): 50-60 (DOI:10.13170/ajas 4.2.13071, Trends in Biomaterials and Artificial Organs, 33(1): 9-14.) International Journal of Fauna and Biological Studies 2018; 5(1): 29-33 (NAAS Rating 4.0) International Journal of Chemical Studies, 6(4): 157-161., MOJ Imunology, 6(4):115-118.)
- 3. A new technology was developed for *in-vitro* and *in-vivo* determination of biocompatibility of different biomaterials. This technology helps in screening the materials before testing in large animals and thus helps in saving time, cost and reducing the number of large animals for testing. The technology has been adopted by many researchers and clinical practitioners.

 (International Wound Journal, doi:10.1111/j.1742-481X.2012.01031.x; Trends in Biomaterials and Artificial Organs, 23: 65-75; 25: 37-42; 25: 161-171; 26: 43-55; Indian Journal of Animal Sciences, 81: 453–55; The Indian Journal of Animal Sciences, 79: 658-661; The Indian Journal of Animal Sciences, 77: 811-814; Journal of South African Veterinary Association, 77: 79-85; Journal of Genetic Engineering and Biotechnology, 2: 77-89; The Indian Veterinary Journal, 87: 457-459; Veterinary Practitioner, 9: 11-16; The Indian Journal of Animal Sciences, 72: 957-959)
- 4. A technology was developed for using biomaterials of biological origin for the reconstruction of tendon and ligaments in animals. Successful use of acellular graft for reconstruction of tendon defect in bovine (cattle and buffalo both) was achieved and the technology for their use in tendon reconstruction was standardized. The technology was transferred by publication of papers, application in clinical cases demonstrations to trainees and veterinarians. The technology has been adopted by many researchers and clinical practitioners.

(Trends in Biomaterials and Artificial Organs, 23: 34-45; Journal of Veterinary Medicine Series A,50: 511-519; The Indian Journal of Animal Sciences, 73: 591-593; The Indian

- Journal of Animal Sciences, **72**: 46-47; The Indian Journal of Animal Sciences, **70**: 169-170; The Indian Journal of Animal Sciences, **70**: 166-168; The Indian Journal of Animal Sciences, **70**: 136-138)
- 5. Three-dimentional (3-D) biodegradable dermal matrices for reconstructive surgery were developed by optimizing various methods and protocols to acellularize the skin of different animal species like rabbit, bovine, porcine, ovine and caprine. These acellular matrixes were used as scaffolds for *in-vitro* growth of primary chicken embryo fibroblast (p-CEF) and primary mouse embryo fibroblasts (p-MEF) and bone marrow derived mesenchymal stem cells (BMSC).
 - (Trends in Biomaterials and Artificial Organs, 27, In press)
- 6. Carbon Fibres were established as a biocompatible implant material for the reconstruction of tendons in different species of animals. The technology for their use in tendon reconstruction (number of filaments per strand and mode of application) was developed. The technology was displayed At Krishi Expo-2000, National Livestock and Poultry Show, Organised by India Trade Promotion Organisation at Pragati Maidan, New Delhi and at Tech Vision 2002 held at Lucknow. It has been also published in ICAR DARE Report 2002 as a Success Story.
 - (Journal of Veterinary Medicine Series A, **50**: 520-526; Journal of Veterinary Medicine Series A,**49**: 269-276; Journal of Veterinary Medicine Series A,**49**: 161-168; The Indian Journal of Animal Sciences, **75**: 494-498; Indian Veterinary Medical Journal,**26**: 127-128; The Indian Journal of Animal Sciences, **70**: 169-170; Indian Journal of Veterinary Pathology, **23**: 56-59)
- 7. A new technology was developed for repair of abdominal wall defects using carbon fibres and carbon sheet. The technology for their use in reconstruction (number of filaments per strand and mode of application) was developed. This was successfully applied in more than 60 clinical cases. These implants were well tolerated and no untoward reactions were noticed.
 - (The Indian Journal of Animal Sciences, 77: 811-814; The Indian Veterinary Journal, 87:139-141; The Indian Veterinary Journal, 85: 430-431; The Indian Veterinary Journal, 85: 658-659; Carbon Letters, 8: 269-273; Carbon Science, 7:81-86; Carbon Science, 6:15-24; The Indian Veterinary Journal, 78: 1014-1017).
- 8. Collection, documentation and validation of indigenous technical knowledge (ITK) revealed that paste of peach (*Prunus persica*) leaves for the treatment of maggot wounds and a mixture of powder of snail skull, alua, sahjan gum, geru and caster oil in cases of shoulder swelling/joint swelling in bovines and equines was found very effective. Based on the two years clinical trials on the cases of shoulder swelling/joint swelling in bovines and equines, ITK was found to induce complete recovery. The items used in these ITK are locally available and hence can be applied very conveniently by the farmer. The efficacy of ITK was comparable to standard veterinary treatment. The technology has been adopted by many researchers and clinical practitioners.
- 9. Dose and duration of use of therapeutic ultrasound and acupuncture in musculoskeletal and neurological disorders in different species of animals was standardized. The dose and duration of therapeutic ultrasound therapy has been standardized for various ailments. viz. Tendon injury, hind quarter weakness, abdominal wall defects, arthritis and fracture healing in experimental animals and successfully applied in clinical cases. (Journal of Veterinary Medicine Series A,53: 249-258; The Indian Journal of Animal
 - Sciences, 78: 242-246; The Indian Journal of Animal Sciences, 77: 1273-1276; The Indian Journal of Animal Sciences, 76: 292-295; Journal of Applied Animal Research, 24: 25-32; Journal of Applied Animal Research, 26: 67-72; The Indian Veterinary Journal, 85: 1040-1044; The Indian Veterinary Journal, 77: 1081-1082)

- 10. A technology was developed for repairing large bone defects in animals using mesenchymal stem cells construct for osteogenesis. The bone marrow samples from rabbit were collected and the rabbit mesenchymal stem cells (r-BMSC) were isolated. The osteogenic effect of mesenchymal stem cell-bioceramic construct (MSC-Ceramic construct) was studied to repair the 30mm critical size bone defect. Radiological studies suggested that the osteogenesis and osseous callus formation to bridge the bone defect (gap) was faster and organized in the stem cell construct group of animals. (Trends in Biomaterials and Artificial Organs, 27: 20-28)
- 11. The technical details of laparoscopy examination of visceral organs were standardized in different species of animals. A new technique i.e. laparoscopic assisted tube cystotomy using Foley's catheter was developed for treating the clinical cases of complete urinary obstruction in male goats. Technique for laparoscopic-guided liver biopsy was standardized and it was found more precise, easy and diagnostically useful procedure as compared to ultrasound guided biopsy. A new training method was developed for training the postgraduate students and veterinarians using endotrainer for hand-eye coordination exercises as simulation of laproscopy. For transer of technology short term traing courses were organized regularly
 - (Journal of Applied Animal Research, 39: 29-32; Turkish Journal of Veterinary and Animal Sciences, 34: 393-402; The Indian Journal of AnimalSciences, 80: 405-409; Turkish Journal of Veterinary and Animal Sciences, 33: 427-436; The Indian Journal of Animal Sciences, 78: 1338-1341; Journal of Applied Animal Research, 33: 201-204; The Indian Veterinary Journal, 86: 953-954; Veterinary Practitioner, 7: 185-187)
- 12. For the management of canine mammary tumours treatment protocols were developed and are in clinical use. These include combination of surgical approach and chemothrapy. Some diagnostic and prognostic markers were also identified for canine mammary tumours. The technology has been adopted by many researchers and clinical practitioners. (Journal of Applied Animal Research, 36:103-108; The Indian Journal of Animal Sciences, 78: 1250-1253; Indian Journal of Canine Practices 3: 117-126; Phytomedica, 9: 37-50; Journal of Canine Development and Research, 1: 54-55; 3: 65-68; 3: 77-79; Indian Veterinary Medical Journal, 26: 163-166)
- 13. A technology was developed for the isolation, proliferation and charactrization of bone marrow derived mesencymal stem cells (BM-MSC) from different species of animals. These mesencymal stem cells have self renewingcapacity with multi differentiation poential of proginator cell. The technique was found easy and useful for research application in different regenerative medicine in animal sciences. (*Trends in Biomaterials and Artificial Organs*, 27: 29-35)

PATENTS

1. A patent has been filed vide Patent Application No. # 2148DEL/2009 dated 15-10-2009. Title of the patent is "Method for Processing and Preparation of Acellular Dermal Matrix of rabbit Origin".

ii) List of publications

i.Books/Manual

Books Published					
S.	Title of the Book	Year	Authors	Publisher	

No				
1	Veterinary Orthopedics and Lameness (ISBN: 978-93-272-8837-7) (Total page 321)(Price Rs. 325)	2018	Anil Kumar Gangwar, Khangembam Sangeeta Devi, Ajit Kumar Singh and Naveen Kumar	Kalyani Publication, New Delhi
2	A Colour Book laparoscopic Techniques in Small Animal Surgery (ISBN: 978-93-85516-56-6) (Total page 164) (Price Rs. 2595)	2016	Swapan Kumar Maiti and Naveen Kumar	New India Publishing Agency, New Delhi
3	Radiography in Veterinary Practice at a glance (Including Diagnostic Imaging techniques) (ISBN: 978-93- 5124-335-9) (Total Page 196)(Cost Rs. 1195)	2015	A. K. Gangwar, Kh. Sangeeta Devi Naveen Kumar	Astral International Pvt. Limited, New Delhi
4	Tissue Engineered Cell Matrix Construct - A novel biomaterial for full thickness skin wound repair (ISBN: 978-3-659-56584-7)	2014	Remya V. and Naveen Kumar	LAP LAMBERT Academic Publishing, Germany
5	Training manual on Laparoscopic Surgery in Small Animal Practice	2011	Naveen Kumar, S. K. Maiti, A. K. Sharma	IVRI, Izatnagar
6	General Animal Surgery and Anesthesiology (With Theory and Practicals) (ISBN: 9789-38-0235- 172) (Total Page 406) (Cost Rs. 1150)	2010	A. K. Gangwar, Naveen Kumar Kh. Sangeeta Devi	New India Publishing Agency, New Delhi
7	Manual on Orthopaedic Biomaterials	2007	A. K. Sharma, Naveen Kumar, S. K. Maiti	IVRI, Izatnagar
8	Manual on Laparoscopy in Small Animal Practice	2007	S. K. Maiti, Naveen Kumar, A. K. Sharma	IVRI, Izatnagar
9	Techniques in Veterinary Surgery ISBN 978-81-931748-3-8	2017	Ajit Kumar Singh, A.K. Gangwar, Naveen Kumar and Kh. Sangeeta Devi	Society of Education, India
	k Chapters	▼7	A (7	D I II I
S. No	Title of the Chapter	Yea r	Authors	Publisher
1.	Chapter 20: Carbon fibers for the reconstruction of tendon in animals, In Indo Carbon, Page 150-158.	2001	Naveen Kumar A. K. Sharma	Shipra Publications, Vikas Marg, Shakarpur, Delhi
2.	Laminitis and its nutritional management, In Nutrition and	2001	Naveen Kumar	Division of Animal Nutrition, IVRI,

	conditions of pet and farm animals, Page 278-285.			
3.	Chapter 22: Use of carbon fibers and carbon fibre mesh in the reconstructive surgery, In Indo Carbon, Page 197-213.	2003	Naveen Kumar	Shipra Publications, Vikas Marg, Shakarpur, Delhi
4.	Chapter 30: Management of surgical conditions associated with nutritional deficiency in dairy animals, In Advanced diagnostic techniques and therapeutic approaches to metabolic diseases in dairy animals, Page 141-145	2003	Naveen Kumar	Division of Medicine, IVRI, Izatnagar
5.	Chapter 34: Use of carbon fibers for the reconstruction of abdominal wall defects, In Carbon Materials for Energy Applications, Page 197-213.	2004	Naveen Kumar	Ideal Impressions Pvt. Ltd., Swami Ram Bihari road, New Delhi
6.	Chapter 7. Anaesthesia in Indian reptilian species, In Indian Wildlife Year Book, Volume IV, Page 47-49.	2005	Naveen Kumar	Association of Indian Zoo and Wildlife Veterinarians and Central Zoo Authority
7.	Chapter 30. Effect of Therapeutic Ultrasound in Experimental Acute traumatic Arthriits in Rabbits, In New Horizons in Animal Sciences, Page 221-226.	2005	Naveen Kumar	Vishal Publishing Company, Jalandhar, Punjab
8.	Treatment of shoulder swelling of shoulders in bullocks/bull, In Inventory of Technical Knowledge in Agricultural, Document III, Page 343-350.	2004	Naveen Kumar	Indian Council of Agricultural Research, New Delhi, Code No. 1272
9.	Evaluation of peach (Prunus persica) leaves with fresh milk in the treatment of FMD lesions/wounds, In Inventory of Technical Knowledge in Agricultural, Document III,Page 254-257.	2004	Naveen Kumar	Indian Council of Agricultural Research, New Delhi, Code No. 1279
10	Evaluation of peach (Prunus persica) leaves with fresh milk in the treatment of FMD lesions/ wounds, In Cross-Sectoral Validation of Technical Knowledge in Agricultural, Document IV, Page 143-147.	2004	Naveen Kumar	Indian Council of Agricultural Research, New Delhi, Code No. 1279
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	Document IV, Page 208-215			
12	Chapter: Management of tendon	2006	Naveen Kumar	Division of Surgery,
	injuries in animals In Compendium			IVRI, Izatnagar
	Prepared for Convocation of UP			
	chapter of ISVS, Page 63-67.			
13	Unit 10: Preparation and	2009	Naveen Kumar	The School of
	Administration of Drugs, In			Agriculture, Diploma in
	Common Disaeases and Prevention			Animal Husbandary, by
14	Charter 11 Applications of call	2010	Naveen Kumar,	IGNOU Director IVDI
14	Chapter 11. Applications of cell adhesion peptides to develop smart	2010	Sonal, Sameer	Director, IVRI, Izatnagar-243 122
	biomaterials for tissue engineering		Shrivatava, Satish	12amagar-243 122
	and reconstructive surgery, In Basic		Kumar	
	Techniques in Peptide Synthesis:			
	Applications in Animal Disease			
	Diagnosis and Research, Edited by			
	Sameer Shrivastava, Sonal, Satish			
	Kumar and M. C. Sharma, Page 153-			
4.5	162.	2010		D. 415.
15	Chapter 36. Smart biomaterials:	2010	Naveen Kumar	Director, IVRI,
	Applications in tissue engineering and reconstructive surgery, In			Izatnagar-243 122
	and reconstructive surgery, In Applied Aspects of Biotechnology,			
	Edited by Sameer Shrivastava, Sonal			
	and Satish Kumar, Page 340-347.			
16	Chapter: First aid treatment to a lame	2010	Naveen Kumar	Director, IVRI,
	horse, In a Training Manual for			Izatnagar-243 122
	Veterinary Dressers (Training			
	Course organized for the participant			
	of Lal Bahadur Shastri National			
	Administrative Academy, Mussorie			
17	(UK)(24Nov,2010 to 3 Dec,2010). Chapter 8. Applications of Scaffolds	2011	Naveen Kumar,	Director, IVRI,
1 /	in Stem Cell Therapy, In	2011	Sameer	Izatnagar-243 122
	Therapeutic Application of Stem		Shrivastava	12amagai 2 13 122
	Cells in Livestock edited by G. Taru			
	Sharma, M. Sarkar, S. Bag and B. C.			
	Das, Page 51-60.			
18	Application of scaffolds in stem cell	2011	Naveen Kumar,	Director, IVRI,
	therapy, In Therapeutic Application		Sameer	Izatnagar-243 122
	of Stem Cells in Livestock, Edited		Shrivastava	
	by G. Taru Sharma, M. Sarkar, S.			
19	Bag and B. C. Das, Page 51-59	2011	Naveen Kumar,	Director, IVRI,
17	Reconstructive surgery with stem cell scaffolds, In Therapeutic	2011	Sameer	Izatnagar-243 122
	Application of Stem Cells in		Shrivastava	12amagai 273 122
	Livestock, Edited by G.			
	TaruSharma, S. Bag, M. Sarkar, B.			
	C. Das and N. H. Mohan, Page 15-			
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20	Glutaraldehyde cross-linked porcine origin biomaterials for the reconstruction of abdominal wall defects in rabbits. Proceedings of ICBME, MIT, Manipal, India, Page 270-278.	2011	Jagsir Singh, Naveen Kumar, Ashok Kumar Sharma, S.K. Maiti, T.K.Goswami,	Narosa Publishing House Pvt. Ltd., New Delhi,
			Anil Kumar Sharma	
20	Chapter 6: Radiographic Positioning of Large Animals, In Manual of Training Course on Radiology and Ultrasonography Page 24-25.	2012	Naveen Kumar	Director, IVRI, Izatnagar-243122
21	Chapter 5: Restraint, anaesthesia and radiographic positioning of small animals, In Manual of training course on Radiology and Ultrasonography, Page 18-23.	2012	Naveen Kumar	Division of Surgery, IVRI, Izatnagar
22	Chapter 12: Ultrasonography of Tendons and Ligaments, In Training Manual on Diagnostic Ultrasound in Veterinary Practice, Page 47-52.	2012	Naveen Kumar	Director, IVRI, Izatnagar-243122
23	Chapter 6: Carbon fibres in biomedical applications, Page 83-102. In recent developments in the field of carbon fibres Edited by Rita Khanna and Romina Cayumil	2018	Naveen Kumar, Anil Kumar Gangwar and Khangembam Sangeeta Devi,	Intech Open Limited, The Shard, 25 th Floor, 32 london Bridge Street, London, SE19SG, United Kingdom
24	Chapter 43. Scaffolds for Abdominal Wall Reconstruction, Page 237-280 In Hand Book of Tissue Engineering Scaffolds, Volume II Edited by Masoud Mozafari, FarshidSefat and Anthony Atala ISBN (Print): 978-0-08-102561-1 ISBN (Online): 978-0-08-102562-8	2018	Naveen Kumar, Vineet Kumar, Anil Kumar Gangwar, Sameer Shrivastava, Swapan Kumar Maiti, Sangeeta Devi Khangembam, Sonal Saxena, P.D.S.Raghuvansi, Naresh Kumar Singh,Ajit Kumar Singh, Karam Pal Singh	Woodhead Publishing Series in Biomaterials by Elsevier Publisher
25	Chapter 54. Scaffolds for Bladder Tissue Engineering, Page 493-548 In Hand Book of Tissue Engineering Scaffolds, Volume II Edited by Masoud Mozafari, FarshidSefat and Anthony Atala	2018	Naveen Kumar, Sonal Saxena, Vineet Kumar, Sameer Shrivastava, Anil Kumar Gangwar,	Woodhead Publishing Series in Biomaterials by Elsevier Publisher

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	ISBN (Online): 978-0-08-102562-8		Maiti, Rukmani	
	ISBN (Online). 770-0-00-102302-0		Dewangan,	
			Sangeeta Devi	
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			Singh, Ajit Kumar	
			Singh, Karam Pal	
26	Charten Management of tonden	2010	Singh Names Variation	Division of Company
26	Chapter: Management of tendon	2019	Naveen Kumar	Division of Surgery,
	injuries in animals.			IVRI, Izatnagar-243122
	In a manual prepared for Refresher			
	course on Veterinary Surgery and			
	Medicine, held (from 17-22 June			
	2019) Sponsored by Anand Milk			
	Union Limited, Anand, Gujrat, Page			
27	29-33.	2010	Novaca V	Division of C
27	Chapter: Tissue engineering using stem cells for abdominal wall	2019	Naveen Kumar	Division of Surgery,
				IVRI, Izatnagar-243122
	surgery in animals.			
	In a Book prepared for ICAR-			
	Sponsored Winter School on			
	"Clinical Applications of Stem cells			
	in Animals" (from 1-21 November,			
28	2019) Page 74-77.	2019	Sameer	Division of Surgery,
20	Chapter: Synthetic Cell Adhesion Peptides (CAPs) fabricated	2019	Shrivastava,	Division of Surgery, IVRI, Izatnagar-243122
	biomaterials for tissue engineering		Sinivastava, Sonal, P.D.S.	1 v K1, 12attlagat - 243122
	applications.		Raghuvanshi,	
	In a Book prepared for ICAR-		Naveen Kumar	
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	"Clinical Applications of Stem cells			
	in Animals" (from 1-21 November,			
29	2019) Page 170-177. Chapter: Principles and Techniques	2019	Naveen Kumar	Division of Surgery,
49	of External Fixation of Fractures.	2019	TNAVECII KUIIIAI	<i>U</i> ,
				IVRI, Izatnagar-243122
	For Compendium on Short Course			
	on "Fracture Management in Animals" (from 1 to 31 October,			
	2019)			
30	,	2019	Naveen Kumar, P.	Division of Surgery,
30	Chapter: Management of lameness and foot disorders.	2019		© 3 ·
			D. S. Raghuvansi	IVRI, Izatnagar-243122
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	ϵ			
	Animals" (from 1 to 31 October,			
31	2019). Chapter 15. Decellularization of	2021	Naveen Kumar,	Dublished by Comings
31	Skin Tissue, Page 165-192	2021	Vineet Kumar,	Published by Springer Nature, Switzerland AG
	In Decellularization Methods of		Sanjay Purohit,	2021
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	Tissue and Whole Organ in Tissue Engineering Edited by Abdol Mohammad Kajbafzadeh Advances in Experimental Medicine and Biology 1345 Series		Anil Kumar Gangwar, Sameer Shrivastava, Swapan Kumar Maiti, Sonal Saxena, Dayamondavid Mathews, P.D.S.Raghuvansi, Ajit Kumar Singh, Karam Pal Singh	
32	Chapter: Fourier Transform Infrared Spectroscopy of the animal tissues. In Real Perspective of Fourier Transforms	2020	Vineet Kumar, Shruti D. Vora, Foram A. Asodiya, Naveen Kumar and AK Gangwar	Intech Open Limited, The Shard, 25 th Floor, 32 london Bridge Street, London, SE19SG, United Kingdom
33	Section IV: Prenatal Period (from calving to 48h)-Foetal/Perinate Aspects, Chapter 30: Surgical Care of Perinates with Malformations. In Bovine Prenatal, Perinatal, and Neonatal Medicine (Edited by Otto Szenci, John F Mee, Ulrich Bleulmarcel A M Tavern)	2021	Khangembam Sangeeta Devi Anil Kumar Gangwar Naveen Kumar Vineet Kumar and Ajit Kumar Singh	Hungarian Association For Buiatrics H-1078 Budapest, Istvánút 2, Hungary
Cha	nters in Manuals			
S.	pters in Manuals Title of the Chapter	Year	Authors	Publisher
	Title of the Chapter Method of external fracture fixation, In Manual on Small Animal	Year 2002	Authors Naveen Kumar	Publisher Communication Centre, IVRI, Izatnagar
S. No	Title of the Chapter Method of external fracture fixation,			Communication Centre,
S. No	Method of external fracture fixation, In Manual on Small Animal Orthopaedic Surgery Tendon repair (Tenorrhaphy), In Manual on Small Animal Orthopaedic Surgery Repair of cranial cruciate ligament, In Manual on Small Animal Orthopaedic Surgery	2002	Naveen Kumar	Communication Centre, IVRI, Izatnagar Communication Centre,
S. No 1	Title of the Chapter Method of external fracture fixation, In Manual on Small Animal Orthopaedic Surgery Tendon repair (Tenorrhaphy), In Manual on Small Animal Orthopaedic Surgery Repair of cranial cruciate ligament, In Manual on Small Animal	2002	Naveen Kumar Naveen Kumar	Communication Centre, IVRI, Izatnagar Communication Centre, IVRI, Izatnagar Communication Centre,
S. No 1 2	Method of external fracture fixation, In Manual on Small Animal Orthopaedic Surgery Tendon repair (Tenorrhaphy), In Manual on Small Animal Orthopaedic Surgery Repair of cranial cruciate ligament, In Manual on Small Animal Orthopaedic Surgery	2002 2002 2002 2002 2003	Naveen Kumar Naveen Kumar Naveen Kumar Colloborative	Communication Centre, IVRI, Izatnagar Communication Centre, IVRI, Izatnagar Communication Centre, IVRI, Izatnagar Communication Centre, IVRI, Izatnagar
S. No 1 2 3	Method of external fracture fixation, In Manual on Small Animal Orthopaedic Surgery Tendon repair (Tenorrhaphy), In Manual on Small Animal Orthopaedic Surgery Repair of cranial cruciate ligament, In Manual on Small Animal Orthopaedic Surgery Division of Surgery: A Profile Chapter 6: Surgical management of hernia in animals, In Current Advances in Veterinary Surgery,	2002 2002 2002 2002	Naveen Kumar Naveen Kumar Naveen Kumar Colloborative effort	Communication Centre, IVRI, Izatnagar Communication Centre, IVRI, Izatnagar Communication Centre, IVRI, Izatnagar Communication Centre, IVRI, Izatnagar Division of Surgery,

	Training Course on Radiology and			
	Ultrasonography, Page 24-25.			
8	Chapter 5: Restraint, Anaesthesia	2012	Naveen Kumar	Director, IVRI,
	and Radiographic Positioning of			Izatnagar-243 122
	Small Animals, In Manual of			
	Training Course on Radiology and			
	Ultrasonography, Page18-23.			
9	Chapter 12: Ultrasonography of	2012	Naveen Kumar	Director, IVRI,
	Tendons and Ligaments, In Training			Izatnagar-243 122
	Manual on Diagnostic Ultrasound in			
	Veterinary Practice, Page 47-52			

i.Research papers

S.No	List of Publications
Vear	2022
1	Pallavi Shah, Sameer Shrivastava, Purnima Gogoi, Sonal Saxena, Saumya Srivastava, Rajkumar James Singh, Basant Godara, Naveen Kumar , Gyanendra Kumar Gaur (2022) Wasp Venom Peptide (Polybia MP-1) Shows Antimicrobial Activity Against Multi Drug Resistant Bacteria Isolated from Mastitic Cow Milk. International Journal of Peptide Research and Therapeutics. 28:44 (https://doi.org/10.1007/s10989-021-10355-0)
Year	2021
1	Ravi Prakash Goyal, Sangeeta Devi Khangembam, Anil Kumar Gangwar, Mahesh Kumar Verma, Naveen Kumar , Parvez Ahmed, Vipin Kumar Yadav, Yogendra Singh, Rajesh Kumar Verma (2021) Development of decellularized aortic scaffold for regenerative medicine using Sapindusmukorossi fruit pericarp extract Micron 142 (2021) 102997 (https://doi.org/10.1016/j.micron.2020.102997)
2	Kailash Baboo, Ashok Kumar Sharma, Naveen Kumar , Swapan Kumar Maiti, Kiranjeet Singh, AswathyGopinathan, Anil Kumar Sharma (2021). Glutaraldehyde Crosslinked Bovine Pericardium with and without Ultrasound Therapy for Reconstruction of Abdominal Wall Defects in Rabbits. Trends in Biomaterials & Artificial Organs, 35(1), 1-9.
3	Ravi Prakash Goyal, Anil Kumar Gangwar, Sangeeta Devi Khangembam, Vipin Kumar Yadav, Rabindra Kuma, Rajesh Kumar Verma and Naveen Kumar (2021) Decellularization of caprine esophagus using fruit pericarp extract of Sapindusmukorossi. Cell Tissue Bank (https://doi.org/10.1007/s10561-021-09916-w (Published online 26 march 2021)123456789().,-volV()0123456789().,-volV)
4	Kaarthick, D.T, Ashok Kumar Sharma, Naveen Kumar , Anil Kumar Gangwar, Dayamon D. Mathew, Sameer Shrivastava, Remya V., Sonal, Swapan Kumar Maiti, Vineet Kumar, Rajendra Singh(2021). Evaluation of Acellular Pericardium and Fibroblast Seeded Acellular Pericardium for the Repair of Full Thickness Skin Defects in Rats. Trends in Biomaterials & Artificial Organs, 35(1), 20-29.
5	Ajit Kumar Singh, Naveen Kumar , A. K. Gangwar, Sameer Shrivastava, Sonal Saxena, S.K. Maiti, P.D.S. Raghuvansi, Dayamon D. Mathews, K.P. Singh (2021). Optimization of Protocols for Decellularization of Buffalo Rumen Matrix. Trends in Biomaterials & Artificial Organs, 35(1), 57-64. Pallavi Shah, Sameer Shrivastava, Rajkumar James Singh, Purnima Gogoi, Sonal Saxena,

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- Divya Mohan, Swapan Kumar Maiti, ShivrajuShivaramu, Sangeetha Palakkara, KalaiselvanElangovan, **Naveen Kumar**, BindhujaBellutiVenkateshappa, Surendra DunthuruSiddaraju, Dinesh Murli, SowbarenyaChelladurai, RamithKallahalliRajanna, Jurgen Hescheler (2021) Evaluation of mesenchymal stem cells with conditioned media and m-EGF for regeneration of liver tissue after partial hepatectomy in Wistar rats. Cellular Physiology and Biochemistry, 55:739-760.
- Narayani Yadav, D.B. Mondal, R. Raguvaran, D.K. Sharma, A.K. Das, **Naveen Kumar** and M.R. Verma (2021) Evaluation of oxidative stress indices and disseminated intravascular coagulation in babesia gibsoni infected dogs with respect to different therapeutic modalities. Haryana Vet. 60(2), 188-190.
- 9 Kalaiselvan E., Swapan Kumar Maiti, Azam Khan, Naveen Kumar Verma, Mohar Singh, Sharun Khan, **Naveen Kumar** (2021) Marsupalization of bilateral ranula in a buffalo calf. MOJ Anatomy & Physiology, 8(1): 11-13.
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iii. Review papers

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iv. Popular articles/ technical

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3	Naveen Kumar, Sharma, A. K., Singh, G.R. and Gopta, O. P. (2000). New-Initiatives:
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6	Naveen Kumar and Dimri, U. (2001) Brucellosis in a cow calf: Foto Feature,
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8	Naveen Kumar (2002). Pashuomein ultrasound dwara rog nidanawamupchar. Smarica,
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9	Naveen Kumar (2010) Salyachicitsa me jaevapadarth (biomaterials),
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	38 (Article in Hindi language)

Significant Achievements of the Applicant

(Please give a brief statement of the most significant achievements, limited to 200 words)

Dr Naveen Kumar has done pioneering research work in the area of Veterinary Surgery especially in the field of biomaterials. He developed the concept of development of biomaterials for the reconstructive surgery from abbatoir waste for the first time in India in Veterinary Surgery. His work on development of biomaterials for veterinary patients has attracted the attention of scientific groups, media and animal owners as he has treated many animals of large defects using biomaterials developed from abbatoir waste for the first time in India. He standardized the protocols of of most of the tissues of different animal species for making the tissue acelluar. The developed acellular biomaterials were applied in more than 700 clinical cases of different species for the reconstruction of abdominsal wall defects and wounds. For the first time in India carbon fibres were established as a biocompatible implant material for the reconstruction of tendons in different species of animals. A new concept of application of laparoscopy in clinical diagnosis and therapeutics in veterinary patients was developed by him. He has also filed one patent in the field of biomaterials. Dr Naveen Kumar has been involved in the treatment of more than 25000 surgical cases and provided consultancy to many Government agencies including Central ministries and Zoological parks.

Certificate by the Applicant

I certify that no vigilance/ disciplinary proceedings are pending against me and the information given in the form is correct to the best of my knowledge.

Date & Place:

Signature of Applicant