Animal Biotechnology department established in 2012-13 after establishment of Veterinary college in 2008. Since then it is imparting ~~in~~ quality Undergraduate and Post Graduate education. Department also help many Post-Graduate and Doctoral students of the other departments to undertake ~~quality~~ research projects in the areas of Molecular Biology. Department is working on different aspects of Animal Biotechnology for betterment of Animal and Poultry Health. Various activities are as follow:

A. UG TEACHING

a. One courses of Animal Biotechnology along with two courses jointly offered with Animal Genetics and Breeding department to the undergraduate students as per the VCI 2008 norms since 2009-10.

b. From year 2016-17, the course curriculum for Animal Genetics and Breeding is followed as per VCI-2016.

c. Lecture notes and practical manuals as per the VCI 2008 for under graduate courses have been prepared.

Table 1 Courses taught, Practical Manuals and Lecture notes prepared for UG

Sr. No.	Course No	Course Name	Credit Hours
	As per VCI 1993		
1.	VPB321	Animal Biotechnology	2+1
2.	AGB-111#	Biostatistics and Computer Application	2+1
	As per VCI 2008		
1.	VPB321	Animal Biotechnology	2+1
2.	AGB-111#	Biostatistics and Computer Application	
	As per VCI 2016		
3.	AGB#	Animal Genetics and Breeding	2+1

 # Collaborative courses with other departments

d. **<u>Participation of faculty in activities of UG students</u>**

i. Advisors to UG students
ii. Monitoring attendance
iii. Conduct exams and preparation of Results
iv. Advisor to game
v. Assistance in preparation of JRF
vi. Advisor for study circle as a non-credit course
vii. As a paper setter and external examiner

B. PG TEACHING

a. Nine courses offered by the department as per ICAR norms 2009.

Table 2 Courses offered to M. V. Sc. and Ph. D. Students as per ICAR 2009

Sr. No.	Course No	Course Name	Cr. Hours
1.	ABT 601	Basic & Applied Biotechnology	3+0
2.	ABT 603	Applied Molecular Biology	2+1
3.	ABT 604	Animal Cell Culture: Principles & Applications	1+2
4.	ABT 606	Vaccine Biotechnology	2+0
5.	ABT 609	Animal Genomics	2+1
6.	ABT 611	Techniques in Molecular Biology & Genetic Engi.	0+3
7.	ABT 702	Functional Genomics & Proteomics	2+1
8.	ABT 705	Advances in Animal Cell Culture	2+1
9.	ABT 791	Doctoral Seminar I	1+0

Table 3 Recognized Teachers for Animal Biotechnology

Sr. No.	Name of Teachers	Teaching up to	Guiding up to
1.	Dr. B.P. Brahmkshtri	Ph. D.	Ph. D.
2.	Dr. Umed V. Ramani	Ph. D.	M. V. Sc.

Table 4 Technical guidance provided to PG/PhD Students for their thesis work

Degree	WORK AREA
M. V. Sc.	➢ Study of Leptin gene polymorphisms in Surti and Jafrabadi buffaloes by PCR RFLP in 2013-15
	➢ Study of DGAT1 gene polymorphism in Surti and Banni buffalo breeds by PCR-RFLP in 2014-16
	➢ Growth Hormone Gene Polymorphism in Surti and Mehsani Goats by PCR-RFLP
Ph.D.	➢ Pathoepidemiological and molecular studies on leptospirosis in bovines of South Gujarat region ➢ Pathoepidemiological and molecular studies on leptospirosis in small ruminants of South Gujarat region in 2013-14 ➢ Studies on sero-epidemiology, diagnostic approaches and pathology of caprine brucellosis on going
	➢ Evaluation of oncolytic potential and immune response to Newcastle disease virus (NDV) in mice (*Mus musculus*) in 2014-15 ➢ sero-epidemiological and molecular characterization of bovine herpesvirus 1 (BOHV-1) in bovine of southern Gujarat in 2015-16
	➢ Relative Gene Expression Analysis of Milk Protein Genes, Fatty Acid Synthesis; and B-Casein Milk Protein and Its Transcription Regulatory in Primary Milk Epithelial Cells of Surti and Mehsani; and Surti and Jafrabadi Buffaloes in 2014-16.

b. Participation of faculty in the activities of PG students

i. As Minor advisors
ii. As Members of advisory committee
iii. As paper setter and examiner
iv. Guidance for research work
v. Evaluation of thesis
vi. For Conduct of qualifying and thesis viva examination
vii. For Guidance in preparation of NET examination

C. RESEARCH

a. Research projects

Sr. No.	Title of the project	Year	Remarks
1.	Molecular characterization of major genes related to milk production in Surti buffalo at Livestock Research Station, Navsari	2013-2016	As PI
2.	Analysis of Chromosomal Abnormalities in Surti Buffalo Using Fluorescence In Situ Hybridization (FISH).	2012-2016	
3.	Detection of Classical Enterotoxigenic coagulase positive *Staphylococcus aureus* in Raw milk, Dairy food products and Handlers' hand swabs.	2015-18	
4.	Molecular detection of *Mycobacterium aviumparatuberculosis*(MAP) from goats and cattle.	2017-2018	
5.	Study of marine finfish and shell fish landings and their taxonomical identification at Dholai fish landing center.	2016-18	

b. Research expertise on areas

i. Next Generation Sequencing
ii. Cell culture
iii. Gene silencing/ Gene Knockdown
iv. Expression profiling of various genes

D. EXTENSION EDUCATION

1. Faculty participated in following extension education activities

a. Participated in *KrishiMahotsav* and *Pashupalanshibir*
b. Expert lectures under ASCAD training
c. Expert lectures in *Pashupalanshibir* / Poultry and Goat training
d. Published popular articles

2. Other activities undertaken by faculties

a. Dr. Umed Ramani acted as Drawing Distribution Officer for the college
b. Participation in election duties
c. Participation in purchase committees
d. Participation in state entrance exams

E. PUBLICATIONS (NO.):

Sr. No.	Name of the Faculty	National Journal	International Journal
1	Dr. Umed V. Ramani	4	19

a. Research articles:

2011-12

1. **Ramani, U.V.**, Tripathi A.K., Vaze M. N., Nandasana K. N., Koringa P. G., Rank D. N. and Joshi C. G. (2011). Somatotropin-mediated gene expression profiling of differentially displayed ESTs during lactation in Indian buffalo (Bubalus bubalis). Journal of Dairy Research 78 326–334.

2. Kurkute A.S., Tripathi A K., Nadeem.S, Jawale C.V., **Ramani, U.V.**, Pande A.M., Rank D.N., and Joshi C.G. (2011). Molecular cloning and characterization of rabbit myostatin gene. The IIOAB Journal. Vol. 2; Issue 5; 2011:1–7.

3. Jadeja R.N., Thounaojam M.C., **Ramani, U.V.**, Devkar R.V., Ramachandran A.V. (2011). Anti-obesity potential of ClerodendronglandulosumColeb leaf aqueous extract. Journal of Ethnopharmacology 135 (2011) 338–343.

4. Thounaojam MC, Jadeja RN, **Ramani UV**, Devkar RV, Ramachandran AV. (2011). Sidarhomboidea. Roxb Leaf Extract Down-Regulates Expression of PPAR?2 and Leptin Genes in High Fat Diet Fed C57BL/6J Mice and Retards in Vitro 3T3L1 Pre-Adipocyte Differentiation. Int. J. Mol. Sci., 12:4661-4677; doi: 10.3390/ijms12074661.

5. Jhala N.B., Vataliya P.H., Rank D.N. and **Ramani, U.V.** (2011). Leptin gene exon-3 polymorphism in Gir cattle and Mehsana buffalo. Animal Science Reporter, 5 (3), 91-9

6. Tripathi A. K., **Ramani, U.V.**, Rank D. N., Joshi C. G. (2011). In vitro expression profiling of myostatin, follistatin, decorin and muscle-specific transcription factors in adult caprine contractile myotubes. *The Journal* of *Muscle Research* and *Cell Motility* **32:23–30** DOI 10.1007/s10974-011-9245-x.

2012-13

1. Tripathi, A.K., Koringa, P.G., Jakhesara, S.J., Ahir, V.B., **Ramani, U.V.**, Bhatt, V.D., Sajnani, M.R., Patel, D.A., Joshi, A.J., Shanmuga, S.J., Rank, D.N., Joshi, C.G., (2012). A preliminary sketch of horn cancer transcriptome in Indian zebu cattle. Gene 493, 124-131.
2. Singh, K.M., Ahir, V.B., Tripathi, A.K., **Ramani, U.V.**, Sajnani, M., Koringa, P.G., Jakhesara, S., Pandya, P.R., Rank, D.N., Murty, D.S., Kothari, R.K., Joshi, C.G., (2012). Metagenomic analysis of Surti buffalo (Bubalus bubalis) rumen: a preliminary study. Molecular Biology Reports 39, 4841-4848.
3. Tripathi, A.K., Aparnathi, M.K., Vyavahare, S.S., **Ramani, U.V.**, Rank, D.N., Joshi, C.G., (2012). Myostatin gene silencing by RNA interference in chicken embryo fibroblast cells. Journal of Biotechnology. 160(3-4): 140-145.
4. Tripathi A. K., Singh K. M., Vaze M. N., **Ramani, U.V.,** Rank D.N. and Joshi C.G. (2012). Full length cDNA synthesis of differentially displayed ESTs during lactation in the Indian buffalo (Bubalus bubalis). Turkish Journal of Veterinary and Animal Sciences 36(1).
5. Vaidya M. B., Sajnani M. R., **Ramani, U.V.**, Tripathi A. K., Bhatt V. D., Patel J. S., Manisha M. P. and Joshi C.G. (2012). A preliminary analysis of repetitive sequence organisation in Bubalus bubalis genome, Indian Journal of Biotechnology 11(1):62-66.

2013-14

1. Mehta, H.H., Patel, A.K., Nandasana, K.N. **Ramani, U.V.**, Koringa, P.G., Shah, R.G., Barvalia, D. R., Kelawala, N.H., Patil, D.B., Rank, D.N., Joshi, C.G., Panchal, K. M. and Kothari, R. K. (2013). Histology and histomorphology of hormone treated surati buffalo udder tissue. American Journal of Animal and Veterinary Sciences 8(2):66-72.
2. Mehta, H.H., Patel, A.K., Nandasana, K.N. **Ramani, U.V.**, Koringa, P.G., Shah, R.G., Barvalia, D. R., Kelawala, N.H., Rank, D.N., Joshi, C.G., Panchal, K. M. and Kothari, R. K. (2013). The effect of hormone treatment on dry surati buffalo mammary gland. International Journal of Pharma and Biosciences. 4(1):298-308.
3. Tripathi A. K., **Ramani, U.V.**, Patel, A. K., Rank D. N., Joshi C. G. (2013). Short hairpin RNA-induced myostatin gene silencing in caprine myoblast cells *in vitro*. Applied Biochemistry and Biotechnology. 169(2):688-94.

2014-15

1. Pandya, G. M., **Ramani, U. V**., Janmeda, M., Dangar, N. S., Tyagi, K., Brahmkshtri, B. P. and Kharadi, V. B. (2014). piRNA: Basics and their Association with PIWI proteins. Current Trends in Biotechnology and Pharmacy, Vol. 8 (3) 303-308.
2. Puttalakshmamma, G., **Ramani, U.V.**, Singh K.M., Patel, A.K., Patel, A.I. and Joshi C.G. (2014). Genetic characterization of paramphistomes of buffalo by HAT-RAPD analysis. Turkish Journal of Veterinary and Animal Sciences. 38: 7-13.

2015-16

1. Banwari L. Y., **Ramani, U. V**., Pandya, G. M. and Brahmkshtri, B. P. (2015). Study of Leptin Gene Polymorphism in Surti and Jaffarabadi Buffaloes by PCR-RFLP. Current Trends in Biotechnology and PharmacyVol. 9 (2) 151-156.

2. Tyagi, K., Brahmkshtri, B. P**., Ramani, U. V**., Kharadi, V. B., Pandya, G. M., Janmeda, Mamta., Ankuya , K. J., Patel, M. D. and Sorathiya, L.M. (2016). Test day variability in yield and composition of surti and mehsani buffaloes milk at 15 and 60 postpartum. *Veterinary world***9:** 595:600.

3. Mamta Janmeda, Pandya, G. M., **Ramani, U. V.**, Kharadi, V. B., Tyagi, K. K. and Brahmkshtri, B. P. (2016). Copy Number Variations in Livestock: An Overview. *International Journal of Science, Environment and Technology***5(5):**3494-3505.

2016-17

1. Janmeda M., Kharadi V., Pandya G., Brahmkshtri B., Ramani U., Tyagi K. (2017) Variation in Test Day Milk Yield and Composition at Day 15 and 60 Postpartum in Surti and Jafarabadi Buffaloes. Journal of Animal Research 7 (3), 451.
2. Janmeda M., Kharadi V., Pandya G., Brahmkshtri B., Ramani U., Tyagi K. (2017) Relative gene expression of fatty acid synthesis genes at 60 days postpartum in bovine mammary epithelial cells of Surti and Jafarabadi buffaloes. Veterinary World 10 (5), 467.

2017-18

1. Mamta Janmeda, **Ramani, U. V.**, Pandya, G. M., Tyagi, K. K., Kharadi, V. B., Brahmkshtri, B. P., Jyotishree Bayan and Pawar, V.D. (2017) Epigenetics: Regulation of Gene Expression. International Journal of Science, Environment and Technology 6(2): 1390 – 1396
2. YH Gadhvi, VB Kharadi, UV Ramani, GP Pandya, NS Dangar, BP Brahmkshtri, VD Pawar (2017). Study on DGAT1 gene polymorphism in Surti and Banni buffaloes by PCR-RFLP. The Indian Journal of Veterinary Sciences and Biotechnology 13 (02):77-82.

b. Gujarati Articles:

૧. ‘‘ઝીંગામાંજોવા મળતો સફેદ સ્પોટ સિન્ડ્રોમનો રોગ’’. ડો. ભાવેશ ત્રાંગડિયા, ડો.વિપુલઆર.પટેલ, ડો.ગૌરવ પંડયા, **ડો.યુ.વી.રામાણી,** ડો.સી.વી.સાવલિયા. કૃષિ વિશ્વસમાચાર. મે-૨૦૧૩.

૨. ‘‘દૂધાળાપશુની પસંદગી વખતેધ્યાનમાંરાખવાનામુદ્દાઓ’’ ડો.ગૌરવ પંડયા ડો. ભાવેશ ત્રાંગડિયા, ડો.વિપુલઆર.પટેલ, **ડો.યુ.વી.રામાણી,**કૃષિ-પશુદર્શન. મે-૨૦૧૩.

૩. ‘‘ગુજરાતની પશુ સંવર્ધન નિતી અંગેની ખેડૂતલક્ષી બાબતો. આદર્શપશુપાલનઅનેમત્સ્યપાલન’’ જી. એમ. પંડયા, મમતાજનમેદા,**યુ. વી. રામાણી**અને બી. પી. બ્રહ્મક્ષત્રી (૨૦૧૫).કૃષિ મહોત્સવબુકલેટ : ૧૮ _ ૨૧

૪. ‘‘પશુઓમાંજોવા મળતી જન્મજાત જનિનીક ખોડ ખાંપણ’’**યુ. વી. રામાણી,**એન. એસ. ડાંગર અને બી. પી. બ્રહ્મક્ષત્રી (૨૦૧૫). કૃષિ મહોત્સવબુકલેટ : ૩૦ - ૩૩.

૫. ‘‘પશુઓમાંચયાપચયની બિમારીઓ અને પ્રાથમીક સારવાર’’ ડો. ગૌરવ પંડયા, **ડો. ઉમેદ રામાણી,** ડો. ભાવેશ ત્રાંગડીયા, ડો. વિપુલપટેલ અને ડો. નિખિલ ડાંગર (૨૦ નવેમ્બર ૨૦૧૭). કૃષિ પ્રભાત પેઈજ ન.-૮.

F. AWARDS / RECOGNITION / HONORS / FELLOW ACHIEVEMENTS TO FACULTY:

a. Best poster award for the research entitled "Study of Leptin Gene Polymorphism in Surti and Jafrabadi Buffaloes by PCR-RFLP" by Yadav, B.L., Ramani U., Pandya G. and Brahmkshtri, B.P. in National Seminar on "Revisiting Management Policies and Practices for Indigenous Livestock & Poultry Breeds as Eco-Friendly Economic Producers" during October 09-11, 2014 at Navsari, Gujarat.

b. Best poster award for the research entitled "Relative Gene Expression Fatty Acid synthesis genes at 60 days Postpartum in Bovine Mammary Epithelial Cells of Surti and Jafrabadi Buffaloes" by Janmeda M., Kharadi V., Pandya G., Brahmkshtri, B., Ramani U. and Tyagi K. in National Symposium during February 8-10 2017 at KVASU, Kerala.

c. Best Oral Presentation award for the research paper entitled "Growth Hormone Gene Polymorphism in Surti and Mehsani Goats by PCR-RFLP" by Bayan J., Kharadi V., Ramani U., Janmeda M., Tyagi K., Pandya G., Dangar N. and Brahmkshtri, B.P. in National Seminar on "Opportunities and Challenges in Translational Research in the frontier area of Animal Biotechnology" during September 22-23, 2017 at Bhubaneswar, Orrisa.

G. Staff of the department participated following trainings

a. **Molecular Methods of Poultry Disease Diagnosis** organized by Dept. of Animal Biotechnology, M V C, Chennai for 21 days training sponsored by ICAR, New Delhi.

b. **Role of whole Genome Sequencing in Animal and Plant Research** from 16-25 May 2011 by AAU Anand Gujarat

c. ***In-silico*** **Genome and Proteome Analysis** on 01-05 JULY 2013at The Bioinformatics Centre, Madras Veterinary College, Chennai, Tamilnadu

d. **Recent advances in Transgenesis in livestocks** From 22 May 2014 to 11 Jun 2014at Division of Animal Genetics, Indian Veterinary Research Institute, Izatnagar – 243122, Bareilly, Uttar Pradesh.

e. **Improving Reproduction Rate in Ruminants by Suitable Reproductive Technologies** From 2nd September 2015 to 22nd September 2015 at Guru Angad Dev Veterinary & Animal Sciences University, Ludhiana – 141 004 (India).

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