# Kunal Sharan

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## Current Position

**Scientist** (August 2014-till date.)
Department of Molecular Nutrition, CSIR-Central Food and Technological Research Institute

## Education

**Ph.D. Life Sciences,** Central Drug Research Institute, Lucknow, (2006-2011). **Ph.D. Viva date:** 17 May 2012 **Ph.D. registration:** Jawaharlal Nehru University, New Delhi, India.

**M.Sc. Biotechnology,** Jiwaji University, Gwalior, India (2003-2005)

**B.Sc. Biology,** Guru Nanak Dev University, Amritsar, India (2000-2003)

## Scientific recognition, Awards and Fellowships

- Co-Chair for Cell Biology and Cell Signaling session at annual meeting of SBC(I) 2016
- Received SERB Young Scientist startup Research grant award 2015.
- Received Wellcome Trust Sanger Institute Postdoctoral Scientist Fellowship 2011
- In a mapping of Indian research output on osteoporosis, published by Annals of Library and Information Studies, recognized as researcher with second highest h-index value in India. (Ref: Annals of Library and Information Studies, vol. 60, Dec 2013, pp 276-283).
- Best Oral Presentation Award in Biological Sciences at CDRI's Diamond Jubilee Celebrations
- Qualified for Department of Biotechnology-Junior research fellowship (DBT JRF), 2006, for securing 5 years fellowship for doing PhD.
- Qualified Council for Scientific and Industrial Research -National Eligibility Test (CSIR-NET), 2005.

## Research Experience

**Post doctoral fellow,** (April 2011- April 2014)
Mouse and Zebrafish Genetics,
Wellcome Trust Sanger Institute,
Cambridge, UK

**Editorial Board Member** (2010-2014) World Journal of Orthopedics

**Ad hoc reviewer for**

1) Journal of Bone and Mineral Research, 2) Biomaterials, 3) Diabetes, Obesity and Metabolism, 4) Phytomedicine, 5) Journal of Ethanopharmacology, 6) British Journal of Nutrition, 7) Biomedicine & Pharmacotherapy, 8) Functional Foods in Health and Disease, 9) Journal of Food Science and Technology, 10) International Journal of Medicine and Medical Sciences, 11) African journal of microbiology research, 12) Journal of Medicinal Plant Research, etc.

**Grant reviewer for**

Science and Engineering Research Board, Gov. of India
Department of Biotechnology, Gov. of India

**Member of Scientific Societies**

Society of Biological Chemists, India (Life member)

## Management and Teaching Experience

- Member of the Institute management council at CFTRI, Mysore, India. (2015-till date)
- Member of Institutional seminar committee at CFTRI, Mysore, India. (2015-till date)
- Subject coordinator for the subject "Cell, Tissue and Molecular Biology" for the AcSIR Integrated MSc-PhD programme on Nutritional Biology at CFTRI, Mysore, India. (2016-till date)
- Instructor for AcSIR PhD coursework at CFTRI, Mysore, India. (2014-till date)
- Instructor for the AcSIR Integrated MSc-PhD programme on Nutritional Biology at CFTRI, Mysore, India. (2015-till date)

## Patents

1. Novel flavonol compounds, a bioactive extract/fraction from *Ulmus wallichiana* and its compounds for prevention for treatment of osteo-health related disorders. (WO/2009/110003) US patent 8669232 B2 (Granted)
2. Novel flavonol compounds, compositions thereof and method for treating bone disorders. US Patent App. 14/159,213
3. Ulmoside-A-derived compound from Ulmus Wallichiana Planchon useful for prevention or cure of metabolic diseases. US Patent App. 14/909,676

## Technology Licensed

- Novel flavonol compounds, a bioactive extract/fraction from *Ulmus wallichiana* and its compounds for prevention for treatment of osteo-health related disorders. (WO/2009/110003); http://www.wipo.int/pctdb/en/wo.jsp?WO=2009110003. **Licensed to Kemxtree LLC, NJ, USA for developing as an orally active rapid fracture healing agent.**

**Publications**

**Total No.s:** 20, **Total citations:** >500, **h-index:** 14, **Total impact factor:** 91.48, **Average impact factor:** 4.57

1. Lewis K*, **Sharan K***, Takumi T, Yadav VK. (2017) Skeletal Site-specific Changes in Bone Mass in a Genetic Mouse Model for Human 15q11-13 Duplication Seen in Autism. **Scientific Reports** 2017;7:1. doi:10.1038/s41598-017-09921-8. *- **equal first author IF-4.259**
2. **Sharan K,** Lewis K, Furukawa T**,** Yadav VK**.** Regulation of bone mass through pineal-derived melatonin-MT2 receptor pathway. **J Pineal Research.** 2017;63:e12423. https://doi.org/10.1111/jpi.12423. **IF- 10.39**
3. **Sharan K** and Yadav VK. Hypothalamic control of bone metabolism. **Best Practice & Research Clinical Endocrinology & Metabolism**. 2014 28 (5), 713-723. **IF-4.47**
4. Roman-Garcia P, Quiros-Gonzalez I, Mottram L, Lieben L, **Sharan K**, Wangwiwatsin A, Tubio J, Lewis K, Wilkinson D, Santhanam B, Sarper N, Clare S, Vassiliou GS, Velagapudi VR, Dougan G and Yadav VK. Vitamin $B_{12}$-dependent taurine synthesis regulates growth and bone mass. **J Clin Invest**. 2014 Jul 1;124(7):2988-3002. **IF-12.78**
5. Khan MP, Mishra JS, **Sharan K**, Yadav M, Singh AK, Srivastava A, Kumar S, Bhaduaria S, Maurya R, Sanyal S, and Chattopadhyay N. A novel flavonol *C*-glucoside preserves bone mineral density, microarchitecture and biomechanical properties in the presence of glucocorticoid by promoting osteoblast survival: a comparative study with human parathyroid hormone. ***Phytomedicine***. 2013 Aug 5. **IF-3.53**
6. Khan K., **Sharan K**, Swarnkar G, Chakravarti B, Mittal M, Barbhuyan TK, China SP, Khan MP, Nagar GK, Yadav D, Dixit P, Maurya R, and Chattopadhyay N. Positive skeletal effects of cladrin, a naturally occurring dimethoxydaidzein, in osteopenic rats that were maintained after treatment discontinuation. ***Osteoporos Int***. 2012. 24(4): p. 1455-70. **IF-3.59**
7. Khan K, Singh A, Mittal M, **Sharan K**, Singh N, Dixit P, Sanyal S, Maurya R, and Chattopadhyay N. [6]-Gingerol induces bone loss in ovary intact adult mice and augments osteoclast function via the transient receptor potential vanilloid 1 channel. ***Mol Nutr Food Res***. 2012 56(12): p. 1860-73. **IF-4.32**
8. Balaramnavar VM, Khan IA, Siddiqui JA, Khan MP, Chakravarti B, **Sharan K**, Swarnkar G, Rastogi N, Siddiqui HH, Mishra DP, Chattopadhyay N, and Saxena AK. Identification of novel 2-((1-(benzyl(2-hydroxy-2-phenylethyl)amino)-1-oxo-3-phenylpropan-2-yl)carbamoyl) benzoic acid analogues as BMP-2 stimulators. ***J Med Chem***. 2012 55(19): p. 8248-59. **IF-6.26**
9. Siddiqui JA, Swarnkar G, **Sharan K**, Chakravarti B, Gautam AK, Rawat P, Kumar M, Gupta V, Manickavasagam L, Dwivedi AK, Maurya R and Chattopadhyay N. A Naturally Occurring Rare Analog of Quercetin Promotes Peak Bone Mass Achievement and Exerts

Anabolic Effect on Osteoporotic Bone. ***Osteoporosis International***. 2011 Dec;22(12):3013-27. **IF-3.59**

10. **Sharan K**, Mishra JS, Swarnkar G, Siddiqui JA, Khan K, Rashmi K, Maurya R, Sanyal S, Chattopadhyay N. A novel quercetin analog from a medicinal plant promotes peak bone mass achievement, bone healing after injury and exerts anabolic effect on osteoporotic bone: The role of aryl hydrocarbon receptor as a mediator of osteogenic action. ***J Bone Miner Res***. 2011 26 (9), 2096-2111. **5-Yr IF-6.28**
11. Swarnkar G, **Sharan K**, Siddiqui JA, Chakravarti B, Rawat P, Kumar M, Arya KR, Maurya R, Chattopadhyay N. Studies on the effects of a novel compound, (2S,3S)-aromadendrin-6-C-β-D-glucopyranoside isolated from the steam-bark of Ulmus Wallichaiana Planchon on bone cells. ***Eur J Pharmacol***. 2011 May 11;658(2-3):65-73. **IF-2.90**
12. Siddiqui JA, **Sharan K**, Swarnkar G, Rawat P, Kumar M, Manickavasagam L, Maurya R, Pierroz D, Chattopadhyay N. Quercetin-6-*C*-β-D-glucopyranoside isolated from *Ulmus Wallichiana*-planchon is more potent than quercetin in inhibiting osteoclastogenesis and mitigating ovariectomy-induced bone loss in rats. ***Menopause***. 2011 Feb;18(2):198-207. **IF-2.73**
13. Swarnkar G, **Sharan K**, Siddiqui JA, Mishra JS, Khan K, Khan MP, Gupta V, Rawat P, Maurya R, Dwivedi AK, Sanyal S, and Chattopadhyay N. A naturally occurring naringenin derivative exerts potent bone anabolic effects by mimicking oestrogen action on osteoblasts. ***Br J Pharmacol***, 2011. 165(5): p. 1526-42. **IF-5.49**
14. Tyagi AM, Srivastava K, **Sharan K**, Yadav D, Maurya R, Singh D. Daidzein Prevents the Increase in CD4+CD28null T Cells and B Lymphopoesis in Ovariectomized Mice: A Key Mechanism for Anti-Osteoclastogenic Effect. ***PLoS One***, 2011. 6(6): p. e21216. **IF-4.41**
15. Siddiqui JA, Swarnakr G, **Sharan K**, Chakravarti B, Sharma G, Rawat P, Kumar M, Pierroz D, Maurya R, Chattopadhyay N. 8,8”-biapigeninyl stimulates osteoblast functions and inhibits osteoclast and adipocyte functions: osteoprotective action of 8,8”-biapigeninyl in ovariectomized mice. ***Mol Cell Endocrinol*** 323:256-67, 2010. **IF-3.75**
16. **Sharan K**, Swarnkar S, Siddiqui JA, Kumar A, Rawat P, Kumar M, Nagar GK, Manickavasagam L, Singh SP, Mishra G, Wahajuddin, Jain GK, Maurya R, Chattopadhyay N. A Novel flavonoid, 6-*C*-β-D-glucopyranosyl-(2S,3S)-(+)-3’,4’,5,7-tetrahydroxyflavanone, isolated from *Ulmus wallichiana*-planchon mitigates ovariectomy-induced osteoporosis in rats. ***Menopause*** 17:577-86, 2010. **IF-2.73**
17. **Sharan K**, Siddiqui JA, Swarnkar S, Tyagi AM, Kumar A, Rawat P, Kumar M, Arya KR, Manickivasagam L, Jain GK, Maurya R, Chattopadhyay N. Extract and fraction of *Ulmus wallichiana* planchon promote peak bone achievement and have non-estrogenic osteoprotective effect. ***Menopause*** 17:393-402, 2010. **IF-2.73**
18. Rawat P, Kumar M, **Sharan K**, Chattopadhyay N, Maurya R. Ulmosides A and B: Flavonoid 6-C-glycosides from Ulmus wallichiana, stimulating osteoblast differentiation assessed by alkaline phosphatase. **B*ioorganic & Medicinal Chemistry Letters*;**2009 Aug 15;19(16):4684-7. **IF-2.45**

19. **Sharan K***, Siddiqui JA, Swarnkar G, Maurya R, Chattopadhyay N. Role of phytochemicals in the prevention of menopausal bone loss: evidence from in vitro and in vivo, human interventional and pharma-cokinetic studies. ***Curr Med Chem*** 2009; 16:1138-1157. ***-Corresponding author. IF- 3.25**
20. **Sharan K**, Siddiqui JA, Swarnkar G, Chattopadhyay N. Role of calcium-sensing receptor in bone biology. ***Indian J Med Res*** March 2008; 127: 274-286. **IF- 1.53**

## Notable Research Recognition by Social/Scientific Press

1. Extract and fraction of *Ulmus wallichiana* planchon promote peak bone achievement and have non-estrogenic osteoprotective effect. ***Menopause*** 17:393-402, 2010. **Discussed in medwire News.**

For comments see:
http://www.medwirenews.com/437/86789/Bone_Health/Bark_extract_may_reduce_postmenopausal_bone_loss.html

2. A Novel flavonoid, 6-*C*-β-D-glucopyranosyl-(2S,3S)-(+)-3',4',5,7-tetrahydroxyflavanone, isolated from *Ulmus wallichiana*-planchon mitigates ovariectomy-induced osteoporosis in rats. ***Menopause*** 17:577-86, 2010. **Discussed in Medwire News.**

For comments see:
http://www.medwirenews.com/437/87769/Bone_Health/Novel_flavonoid_has_therapeutic_potential_for_postmenopausal_osteoporosis.html

3. Vitamin $B_{12}$-dependent taurine synthesis regulates growth and bone mass. **J Clin Invest**. 2014 Jul 1;124(7):2988-3002. **Discussed in Science Daily**

**For comments see:** http://www.sciencedaily.com/releases/2014/06/140609205304.htm

## Abstracts Published in National and International Conferences/Symposia

**1.** **Sharan K**, Siddiqui JA, Swarnkar G, Rawat P, Maurya R, Sanyal S and Chattopadhyay N. Isolation and characterization of a novel bone forming agent (CDROSTEOID-II) from natural source. ***8th European Congress on Menopause (EMAS)/Maturitas 63, Supplement 1 (2009) S1–S136***

**2.** Rawat P, Kumar M, **Sharan K**, Chattopadhyay N, Maurya R. Osteogenic constituents of *Ulmus wallichiana.* ***4th International Symposium on Current Trends In Drug Discovery Research (CTDDR-2010)/Medicinal Chemistry Research 19, S102-S103***

**3.** **Sharan K**, Siddiqui JA, Swarnkar G, Rawat P, Maurya R, Sanyal S and Chattopadhyay N. GTDF is a novel orally active bone forming small molecule from natural source**. *5th Annual Conference of Indian Society of bone and mineral research (ISBMR-2009).***

4. Swarnkar G, **Sharan K**, Siddiqui JA, Tyagi AM, Rawat P, Maurya R and Chattopadhyay N. 6-glucopyranosyl-4',5',7-trihydroxyflavanone is a novel dual action compound: inhibit bone marrow adipogenesis and promotes osteoblastogenesis. ***5th Annual Conference of Indian Society of bone and mineral research (ISBMR-2009).***
5. **Sharan K,** Yadav VK. Melatonin regulation of bone mass**.** ***Wellcome trust Sanger Institute 1st Model Organisms Symposium 2012.***
6. Ch. Reenee Devi, Md Touseef Khan, Govindraj Ellur and **Kunal Sharan**. Maternal hypercholesterolemia is associated with altered in-utero mineralization of the offspring's bone. ***85th National conference of Society of Biological Chemists India (SBCI)-2016***. ***Received Best poster award**
7. Bachagol DB, Joseph GS, Ellur G, Aruna P, Singh RP and **Sharan K.** PSO enhances the achievement of peak bone mass by epigenetic regulation of liver IGF-1 in growing female rats. ***85th National conference of Society of Biological Chemists India (SBCI)-2016***.
8. Ellur G, Joseph GS, Khan MT and **Sharan K**. Maternal excess protein during embryonic development results in the aberrant bone formation in the offspring. ***85th National conference of Society of Biological Chemists India (SBCI)-2016***.