Biodata

Dr. Maddika Subba Reddy, ***PhD, FASc, FNASc, FNA***
Group Leader, Lab of Cell Death & Cell Survival
Center for DNA Fingerprinting & Diagnostics (CDFD)
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Education & Training

MSc, Biotechnology	:	University of Hyderabad, India
PhD, Cell Biology	:	University of Manitoba, Canada
Postdoctoral Fellow	:	Yale University, USA

Academic positions

Group Leader	: Centre for DNA Fingerprinting & Diagnostics (Since 2010 -)
Sr. Research Scientist	: Institute of Life Sciences, Hyderabad (2009-2010)

Research Interests

Molecular signaling networks in cells, Cell Biology; Phosphatase biology, Ubiquitin biology

Selected Awards and Honors

2023	Shanti Swarup Bhatnagar (SSB) prize for Science and Technology
2023	Fellow, Indian National Science Academy
2022	Fellow, National Academy of Sciences
2022	CDRI award for excellence in drug research
2021	Fellow, Indian Academy of Sciences
2018	National Bioscience award (DBT)
2018	NASI-SCOPUS young scientist award
2017	B M Birla Science Prize in Biology
2017	Elected Member, Guha Research Conference
2016	WellcomeTrust/DBT India Alliance Senior Fellow
2013	Senior Innovative Young Biotechnologist Award (Sr. IYBA)
2011	WellcomeTrust/DBT India Alliance Intermediate Fellow
2011	Elected Associate-Indian Academy of Sciences
2010	DBT Ramalingaswami fellowship (declined)
2009	DBT- Innovative Young Biotechnologist Award (IYBA)
2007	E. L. Drewry Memorial Award, Canada
2007	Merck Frosst Canada Inc. Award for Excellence in Research in Cell Biology, Canada
2006-07	Nancie J. Mauro (Nee Tooley) Scholarship in Oncology Research, Canada

Publications

Research Articles

1. Reshi HA, Medishetti R, Ahuja A, Balasubramanian D, Babu K, Jaiswal M, **Maddika S**. EYA protein complex is required for Wntless retrograde trafficking from endosomes to Golgi. **Dev Cell.** 2024 (In Press).
2. Vamadevan V, Chaudhary N, **Maddika S**. Ubiquitin-assisted phase separation of dishevelled-2 promotes Wnt signalling. **J Cell Sci.** 2022;135(24):jcs260284.
3. Tathe P, Chowdary KVSR, Murmu KC, Prasad P, **Maddika S**. SHP-1 dephosphorylates histone H2B to facilitate its ubiquitination during transcription. **EMBO J**. 2022; 41(19):e109720.
4. Palicharla VR, Gupta D, Bhattacharya D, **Maddika S**. Ubiquitin-independent proteasomal degradation of Spindlin-1 by the E3 ligase HACE1 contributes to cell-cell adhesion. **FEBS Lett**. 2021, 595 (4): 491-506.
5. Kumar P, Tathe P, Chaudhary N, **Maddika S**. PPM1G forms a PPP-type phosphatase holoenzyme with B56δ that maintains adherens junction integrity. **EMBO Rep.** 2019: e46965.
6. Shah VJ, **Maddika S.** $CRL7^{SMU1}$ E3 ligase complex driven H2B ubiquitination functions in sister chromatid cohesion by regulating SMC1 expression. **J Cell Sci.** 2018;131(8):jcs213868.
7. Shinde SR, **Maddika S.** PTEN regulates glucose transporter recycling by impairing SNX27 retromer assembly. **Cell Reports**. 2017, 21(6): 1655-1666.
8. Behera S, Kapadia B, Kain V, Alamuru-Yellapragada NP, Murunikkara V, Kumar ST, Babu PP, Seshadri S, Shivarudraiah P, Hiriyan J, Gangula NR, **Maddika S**, Misra P, Parsa KVL. ERK1/2 acitvated PHLPP1 induces skeletal muscle ER stress through the inhibition of a novel substrate AMPK. **Biochim Biophys Acta.** 2018, 1864 (5): 1702-1716.
9. Gangula NR, **Maddika S.** Interplay between the phosphatase PHLPP1 and E3 ligase RNF41 stimulates proper kinetochore assembly via the outer-kinetochore protein SGT1. **J Biol Chem.** 2017, 292 (34): 13947-13958.
10. Kumar P, Munnangi P, Chowdary KR, Shah VJ, Shinde SR, Kolli NR, Halehalli RR, Nagarajaram HA, **Maddika S.** A human tyrosine phosphatase interactome mapped by proteomic profiling. **J Proteome Res.** 2017, 16 (8): 2789-2801.
11. Joshi K, Shah VJ, **Maddika S**. GINS complex protein Sld5 recruits SIK1 to activate MCM helicase during DNA replication. **Cell Signal.** 2016; 28(12): 1852-1862.
12. Raychaudhuri K, Chaudhary N, Gurjar M, D'Souza R, Limzerwala J, **Maddika S**, Dalal SN. 14-3-3 sigma gene loss leads to activation of the epithelial to mesenchymal transition due to the stabilization of c-Jun protein. **J Biol Chem**. 2016, 291(31): 16068-81.
13. Shinde SR, **Maddika S**. PTEN modulates EGFR late endocytic trafficking and degradation by dephosphorylating Rab7. **Nature Communications**. 2016, 7:10689.
14. Palicharla VR, **Maddika S.** Non-canonical ubiquitin linkage leads to YB-1 protein secretion. **Cell Signal**. 2015; 27(12): 2355-2362.
15. Kapoor R, Arora S, Ponia SS, Kumar B, **Maddika S**, Banerjea AC. The miRNA miR-34a enhances HIV-1 replication by targeting PNUTS/PPP1R10, which negatively regulates HIV-1 transcriptional complex formation. **Biochem J**. 2015, 470 (3): 293-302.
16. Chaudhary N, **Maddika S**. WWP2-WWP1 ubiquitin ligase complex co-ordinated by PPM1G maintains the balance between cellular p73 and ΔNp73 levels. **Mol Cell Biol**. 2014; 34(19): 3754-64.

17. Jangamreddy JR, Panigrahi S, Lotfi K, Yadav M, **Maddika S**, Tripathi AK, Sanyal S, Łos MJ. Mapping of apoptin-interaction with BCR-ABL1, and development of apoptin-based targeted therapy. **Oncotarget**. 2014, 5 (16): 7198-211.

18. Zhang J, Zhang P, Wei Y, Piao HL, Wang W, **Maddika S**, Wang M, Chen D, Sun Y, Hung MC, Chen J, Ma L. Deubiquitylation and stabilization of PTEN by USP13. ***Nature Cell Biol***. 2013; 15(12): 1486-94.

19. Gangula NR, **Maddika S**. WD Repeat Protein WDR48 in Complex with Deubiquitinase USP12 Suppresses Akt-dependent Cell Survival Signaling by Stabilizing PHLPP1. ***J Biol Chem.*** 2013; 288(48): 34545-54.

20. Shinde SR, Gangula NR, Kavela S, Pandey V, **Maddika S**. TOPK and PTEN participate in CHFR mediated mitotic checkpoint. **Cell Signal**. 2013, 25(12): 2511-17.

21. Kuna RS, Girada SB, Asalla S, Vallentyne J, **Maddika S**, Patterson JT, Smiley DL, DiMarchi RD, Mitra P. Glucagon-like peptide-1 receptor-mediated endosomal cAMP generation promotes glucose-stimulated insulin secretion in pancreatic β-cells. ***Am J Physiol Endocrinol Metab.*** 2013; 305(2): E161-70.

22. Dulla B, Kirla KT, Rathore V, Deora GS, Kavela S, **Maddika S**, Chatti K, Reiser O, Iqbal J, Pal M. Synthesis and evaluation of 3-amino/guanidine substituted phenyl oxazoles as a novel class of LSD1 inhibitors with anti-proliferative properties. **Org. Biomol Chem.** 2013, 11(19): 3103-7.

23. Kavela S., Shinde SR., Ratheesh R., Viswakalyan K., Bashyam MD., Swarnalata G., Vamsy G., Pattnaik S., Rao S., Sastry RA., Srinivasulu M., Chen J & **Maddika S**. PNUTS functions as a proto-oncogene by negatively regulating PTEN. ***Cancer Research.*** 2013; 73(1): 205-14.

24. **Maddika S**, Kavela S, Rani M, Palicherla PV, Chen J. WWP2 is an E3 ubiquitin ligase for PTEN. ***Nature Cell Biol***. 2011; 13(6): 728-33.

25. **Maddika S,** Chen J. Protein kinase DYRK2 is a scaffold that facilitates the assembly of an E3-ligase. ***Nature Cell Biol*** 2009; 11(4):409-19.

26. **Maddika S,** Sy SM, Chen J. Functional interaction between Chfr and Kif22 controls genomic stability. ***J Biol Chem***. 284(19): 12998-3003.

27. **Maddika S,** Panigrahi S, Weichec E, Wesselborg S, Fischer U, Schulze-Osthoff K, Los M. Unscheduled Akt- triggered activation of CDK2 as a key effector mechanism of apoptin's anti-cancer toxicity. ***Mol Cell Biol***. 2009; 29(5): 1235-48.

28. Ghavami S, Eshraghi M, Kadkhoda K, Mutawe MM, **Maddika S**, Bay GH, Wesselborg S, Halayko A, Klonisch T, Los M. Role of BNIP3 in TNF-induced cell death – TNF upregulates BNIP3 expression. ***Biochim. Biophys. Acta.*** 2009;1793(3):546-60.

29. **Maddika S,** Ande SR, Weichec E, Hansen LL, Wesselborg S, Los M. Akt mediated CDK2 phosphorylation regulates its dual role in cell cycle and apoptosis. ***Journal of Cell Sci***. 2008, 121 (7): 979-88.

30. **Maddika S,** Weichec E, Ande SR, Poon IK, Fischer U, Wesselborg S, Jans DA, Schulze-Osthoff K, Los M. Interaction with PI3-Kinase contribute to the cytotoxic activity of apoptin. ***Oncogene*** 2008, 27 (21): 3060-5.

31. **Maddika S,** Bay GH, Kroczak TZ, Ande SR, Maddika S, Weichec E, Gibson SB, Los M. Akt is transferred to the nucleus of cells treated with apoptin, and it participates in apoptin induced cell death. ***Cell Proliferation*** 2007, 40 (6): 435-48.

32. Burek M*, **Maddika S***, Burek CJ, Daniel PT, Schulze-Osthoff K, Los M. Apoptin induced cell death is modulated by Bcl-2 family members and is Apaf-1 dependent. ***Oncogene*** 2006. 25(15): 2213-22. *[* Equal First Authorship]*

33. **Maddika S**, Booy EP, Johar D, Gibson SB, Ghavami S, Los M. Tumor-specific toxicity of apoptin is independent of death receptors but involves the loss of mitochondrial membrane potential and the release of mitochondrial cell death mediators by a Nur77 dependent pathway. ***Journal of Cell Sci****.* 2005, 118 (19): 4485 – 4493.
34. Hashemi M, Karami-Tehrani F, Ghavami S, **Maddika S**, Los M. Adenosine and Deoxyadenosine induces apoptosis in the estrogen receptor positive and negative human breast cancer cells via the intrinsic pathway. ***Cell proliferation*** 2005, 38 (5): 269-85.
35. Barczyk K, Kreuter M, Pryjma J, Booy EP, **Maddika S**, Ghavami S, Berdel WE, Roth J, Los M. Serum cytochrome c indicates invivo apoptosis and can serve as a prognostic marker during cancer therapy. ***Int J Cancer*** 2005; 116(2); 167-73.

Reviews and commentaries

1. Shinde SR, **Maddika S**. Post translational modifications of Rab GTPases. **Small GTPases**. 2018, 9 (1-2): 49-56.
2. Kumar P, **Maddika S**. Cellular dynamics controlled by phosphatases. **J IISc**. 2017, 97(1): 129-145.
3. Shinde SR, **Maddika S**. A modification switch on a molecular switch: Phosphoregulation of Rab7 during endosome maturation. **Small GTPases**. 2016, 7(3): 164-7.
4. Jain MV, Paczulla AM, Klonisch T, Dimgba FN, Rao SB, Roberg K, Schweizer F, Lengerke C, Davoodpour P, Palicharla VR, **Maddika S**, Los M. Interconnections between apoptotic, autophagic and necrotic pathways: implications for cancer therapy development. ***J Cell Mol Med.*** 2013; 17(1):12-29.
5. Ande SR, Chen J, **Maddika S**[#]. E3 ubiquitin ligases as drug targets for cancer therapies. **Eur J Pharmacol.** 2009, Invited review.
6. Los M, **Maddika S**, Schulze-Osthoff K. Switching Akt: From survival signaling to deadly response. ***BioEssays*** 2009; 31(5):492-5.
7. **Maddika S.,** Ande SR., Panigrahi S., Paranjothy T., Weglarczyk K., Zuse A., Eshraghi M., Manda KD., Wiechec E and Los M. Cell survival, cell death and cell cycle pathways are interconnected. ***Drug Resist Updates*** 2007, 10 (1-2) 13-29.
8. Kroczak TJ., Baran J., Pryjma J., Siedlar M., Reshedi I., Hernandez E., Alberti E., **Maddika S.,** and Los M. The emerging importance of DNA mapping and other genome based techniques as tools to identify new drug targets and as a mean of therapy personalization. ***Expert Opin. Ther. Targets*** 2006: Vol 10(2): 289-302.
9. **Maddika S**., Mendoza FJ., Hauff K., Zamzow CR., Paranjothy T and Los M. Cancer Selective Therapy of the Future: Apoptin and Its Mechanism of Action. ***Cancer Biol Ther****.* 2006 Vol 5(1): 10-19.
10. Pour-Jafari H., Ghavami S., and **Maddika S**. Mitochondrial physiology and toxicity (mitotoxicity); importance for the immune system, programmed cell death and cancer*.* ***Curr. Med. Chem.*** *AIAA* 2005 Vol 4 (4); 439-48.
11. Kreuter M., Langer C. Kerkhoff C., Reddanna P., Kania A.L., **Maddika S**., Chlichlia K., Bui NT., and Los M (2004) Stroke, myocardial infarct, acute and chronic inflammatory diseases: Caspases and other apoptotic molecules as targets for drug development. ***Arch. Immunol. Ther. Exp****.* 2004,Vol 52, 141-155.

Book Chapters

1. Ghavami S., Barczyk K., **Maddika S**., Pourjafari H., Kroczak T., and Los, M. Monitoring of programmed cell death in vivo: new methods of cancer therapy monitoring. In: Apoptotic pathways as target for novel therapies in cancer and other diseases. Edited by M. Los & S.B Gibson; *Kluwer Academic Press,* (2004), ISBN 0-387-23384-9.
2. Banerji S., Ande SR., **Maddika S**., Banerji V., Rashedi I., Owens NW., Zuse A., Schweizer F. and Los M."Peptides and peptidomimetics as cancer therapy sensitizing agents." *in:* Sensitization of Cancer Cells to Chemo/Immuno/Radio Therapy. (2008) *edited by:* B. Bonavida; *Humana Press, Inc.* ISBN 1934115290.

Research Grants

Agency	Title	Funding amount	Duration
WellcomeTrust-DBT India Alliance (SF)	Investigating cellular processes and pathways controlled by phosphatases	4.4 crores	5 years (2017-2023)
DBT	Biochemical and functional studies on multi-protein complexes assembled by Lis1	98.67 lakhs	3 years (2023-2026)
DST-SERB	Studies on protein complexes associated with RBR-E3 ligases	67 lakhs	3 years (2023-2026)
DST-SERB	Deciphering cellular roles of non-canonical ubiquitination	45 lakhs	3 years (2018-2021)
CSIR	Studies on non-canonical functions of splicing proteins in maintaining genomic stability	30 lakhs	3 years (2017-2020)
DBT (Sr. IYBA)	Molecular dissection of PI3-Kinase/Akt pathway by using a proteomics based approach	94.5 lakhs	3 years (2014-2017)
WellcomeTrust-DBT India Alliance (IF)	Systematic studies on the functional network of phosphatases in cell life and death	3.44 Crores	5 years (2011-2016)
DST	Evaluating the role of PTEN interacting proteins during its tumor suppressor function	22 lakhs	3 years (2012-2015)
CSIR	Mechanistic studies on the role of protein Kinase SNF1LK in cell cycle and cancer	22.92 lakhs	3 years (2011-2014)
DBT (IYBA)	Molecular dissection of PI3-Kinase/Akt pathway by using a proteomics based approach: A study to identify novel potential oncogenes and tumor suppressors	49.95 lakhs	3 years (2010-2013)
DBT	Identification and characterization of PTEN regulators	19.98 lakhs	3 years (2010-2013)

Supervision activities

PhD Students

1.	Subhashree Samal	(2024 – present)
2.	Vikas Bhari	(2023 – present)
3.	Dhruv Gohil	(2022 – present)
4.	Himanshu Darji	(2021 – present)
5.	Keshav Gupta	(2020 – present)
6.	Rahul Baroi	(2018 – present)
7.	Devanshi Gupta	(2017 – present)
8.	Hilal A Reshi	(2017 – present)
9.	V Vaishna	(2016 – 2023)
10.	Prajakta Tathe	(2016 – 2023)
11.	Parveen Kumar	(2013 – 2019)
12.	Varun J Shah	(2012 – 2018)
13.	Swapnil R Shinde	(2011 – 2018)
14.	G. Narmadha Reddy	(2011 – 2017)
15.	P.V. Vivek Reddy	(2010 – 2016)
16.	Neelam Chaudhary	(2009 – 2015)

Postdoctoral trainees

1.	Dr. Parveen Kumar	(2020 – 2022)
2.	Dr. Harika Vemula	(2018 - 2022)
3.	Dr. Suresh Sawanth	(2018 - 2021)
4.	Dr. Pavani Neeraja	(2017 - 2019)
5.	Dr. K. Nagalakhsmi	(2014 - 2016)
6.	Dr. Tabasum Sidiq	(2012 - 2013)
7.	Dr. Vimal Pandey	(2011 - 2012)

Project trainees

1.	Sakshi D	(2024 – present)
2.	Tanuja B	(2018 – 2022)
3.	Sunu Joseph	(2017 - 2021)
4.	Kiranmayee	(2018 - 2019)
5.	Debjani Bhattacharya	(2015 - 2017)
6.	Bhavya K	(2014 - 2015)
7.	M. Prathyusha	(2013 - 2017)
8.	KVS Rammohan	(2013 - 2016)
9.	Kiranmai Joshi	(2010 - 2013)
10.	Murali Mohan M	(2011 - 2012)
11.	Ranita De	(2011 – 2012)
12.	Sridhar K	(2009 - 2012)