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Alterations in actin binding proteins and miR~17-92 cluster in cancer cell metastasis and attenuation by DHA

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The talk will cover our current investigations focused on characterizing actin binding proteins and their roles in the context of cancer cell metastasis and cell death. Recently, we demonstrated that the actin binding protein VASP, was differentially phosphorylated at S157 and S239 and this phosphorylation was associated with proliferation and invasive phenotypes. Furthermore, we have identified interactions between the actin binding proteins profilin1 and pVASP S157 as well as cofilin1 and pVASP 239. These interactions are associated with altered subcellular distribution, specifically nuclear localization. Interestingly, miR-17~92 has been shown to be elevated in cancer models and we also observed elevations in our models. Profilin and cofilin are predicted targets of the miR-17~92 components which implies a possible link between changes in profilin and cofilin expression and miR-17~92. Moreover, docosahexaenoic acid (DHA), a polyunsaturated fatty acid and dietary supplement is currently being investigated as a new and novel concept based therapy for cancer control. In our models, DHA supplementation was able to modify expression and subcellular distribution of actin binding proteins as well as decrease expression of the miR-17~92 cluster. Our data identify novel, new modifications in actin binding protein expression and associations with miR-17~92 cluster that are attenuated by DHA supplementation. Collectively, these data indicate a therapeutic potential for DHA in modulating cancer cell survival and metastasis.

Biography

Mehboob Ali has studied cancer cell biology and therapeutics for 5+ years and has authored more than 19 peer-reviewed articles including book chapter. He has served as a reviewer for the peer reviewed internationally recognized journals. Ali is a member of the several professional bodies including AACR, ATS, and ASCO and acted as a judge for poster session in scientific meetings. He has served as a broad member of postdoc research symposium (PRS) committee in between 2010-2013 and also as a senior vice president of Jefferson Postdoc Association (JPA) in between 2010-2013 at Thomas Jefferson University, Philadelphia.

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