THE INFLAMMATION-RESOLVING TRIPHYDROXY DOCOSAHEXAENOIC ACID DERIVATIVE, RESOLVIN D2 INCREASES MCF-7 CELL NUMBER
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INTRODUCTION

- Resolvin D2 is an inflammation-resolving trihydroy lipid mediator generated endogenously from the omega-3 polyunsaturated fatty acid, docosahexaenoic acid (DHA)1.
- Formyl peptide receptors (FPRs) are G-protein coupled receptors.
- FPRs can bind a wide range of structurally diverse ligands including proteins, small peptides and bioactive lipid mediators. They are expressed in both estrogen receptor-positive (MCF-7) and estrogen receptor-negative (MDA-MB-231) breast cancer cell lines.
- Some of the endogenous inflammation-resolving FPRs ligands (annexin A1 and its N-terminal AC2-26 and the trihydroxy lipid mediator, lipoxin A4) stimulate the proliferation of both MCF-7 and MDA-MB-231 through activation of FPRs2.

AIM

- To investigate the effect of RvD2 on breast tumour cell proliferation and to examine whether it mediates its action via the FPRs.

METHODS

- RvD2 was obtained by total chemical synthesis.
- Both MCF-7 and MDA-MB-231 were seeded in 24 well plates in 10% FCS media at 50,000 cells/well for 24 hours. Cells were then incubated with serum free media for another 24 hours before treatment with FCS 5% (v/v) or RvD2 0.1-100 nM. After 48 hours viable cells were enumerated.

RESULTS

- Resolvin D2 concentration-dependently increased MCF-7 cell proliferation.

CONCLUSIONS

- The data suggest that RvD2 induces the proliferation of MCF-7 (but not MDA-MB-231 cells) via activation of FPR2 receptors.

REFERENCES