DEPARTMENT OF BIOTECHNOLOGY

Seminar on "**A marine compound 1,2 diyldipalmitoleate derivative can be a Cannabinoid Receptor Type I (CBRI) agonist in ovarian cancers**" **09-08-2024**

Department of Biotechnology has organized a Seminar on "A marine compound 1,2 diyldipalmitoleate derivative can be a Cannabinoid Receptor Type I (CBRI) agonist in ovarian cancers" on 09-08-2024. The gathering was welcomed by Dr.A.Nirmala, Associate Professor and Head, Department of Biotechnology, AVIT. Dr.L.Nagarajan, Event coordinator, Associate Professor, Department of Biotechnology was given introduction about the chief guest **Dr.Mary Elizabeth Gnanambal .K Professor (SRMC)** . Chief guest was honored with memento by Dr.A.Nirmala. This seminar was held with the aim of providing an in-depth understanding of ovarian cancer and current treatment measures. The seminar brought together students from all the years of Biotechnology and Pharmaceutical Engineering to meet with expert in this field and to discuss the latest trends, challenges and opportunities in cancer biology. The seminar included presentations, discussions, case studies and interactive sessions to facilitate learning and knowledge sharing among the students about ovarian cancer.

Key Topics Discussed:

- **Definition and Overview:** It is well known that endocannabinoids (anandamide and 2-arachidonoyl glycerol) regulate varied physiological and neurological processes of a cell, including, memory, neurogenesis, appetite, homeostasis, and stress response. These exciting molecules and their mimics partake in numerous pathways primarily by two receptors, Cannabinoid Receptor 1 and 2 (CBR1 and CBR2), besides some more putative targets. Of these, CB1 is primarily expressed in brain cells. Nevertheless, its expression is also reported in different locations including, spleen, heart, adrenal gland, ovaries, endometrium, and testes, among others. Indeed, CBR1 and their endogenous ligands are generally upregulated in the fast-growing cancer phenotypes to meet up their energy demands over the normal cell types.

- **Challenges in this domain:** The seminar also addressed the challenges and obstacles. However, the irony is that when CBR1 is expressed and stimulated more than a certain level, some surprising events happens: (i) accumulation of ceramide and caspases causing an invariable release of proapoptotic factors and (ii) down-regulation of Matrix Metalloproteinases (MMPs), Vascular Endothelial Growth Factors (VEGF) of major types, which ultimately lead to cell death. Fatty Acid Amide Hydrolase (FAAH1), on the other hand, is a member of the serine hydrolase which is the principal catabolic enzyme of the endocannabinoid.

- **Conclusions:** Based on all the previous reports on CBR1 and FAAH1 ligands, we conclude that apart from being shown as a CBR1 agonist, **C2** may also act as FAAH1 blocker which could have maintained its concentration in cancerous cells sufficient enough to stimulate CB1 pathway. Thus it may be speculated that this naturally occurring macromolecule in addition to being a CB1 agonist can also be a FAAH1 blocker simultaneously, in which case, dual roles must be appreciated. The anticancer compound, (9*Z*,9'*Z*)-3-hydroxypropane-1,2-diyl bis(hexadec-9-enoate) is active against PA1 cell line at 1.7 µM concentration, in vitro. Despite efficiency at a lower concentration, **C2** did not kill non-cancerous CHO cell line even when treated at 60 times more IC_{50} values than used for PA1. It could also be investigated for anticancer properties across a panel of cancer cells as CBr1/FAAH1 modulators, so that these unique dual pathways can be explored.

  The seminar on 'A marine compound 1,2 diyldipalmitoleate derivative can be a Cannabinoid Receptor Type I (CBRI) agonist in ovarian cancers' was a comprehensive and informative event that provided valuable insights into the field of ovarian cancer. The discussions and presentations highlighted its importance and its driving innovation, addressing societal challenges, and creating opportunities. The seminar concluded with an emphasis on the potential career opportunities for the students and the need for continuous learning and networking in this field. The seminar ended successfully by vote of thanks by Ms.Kaviya, III yr Biotechnology.


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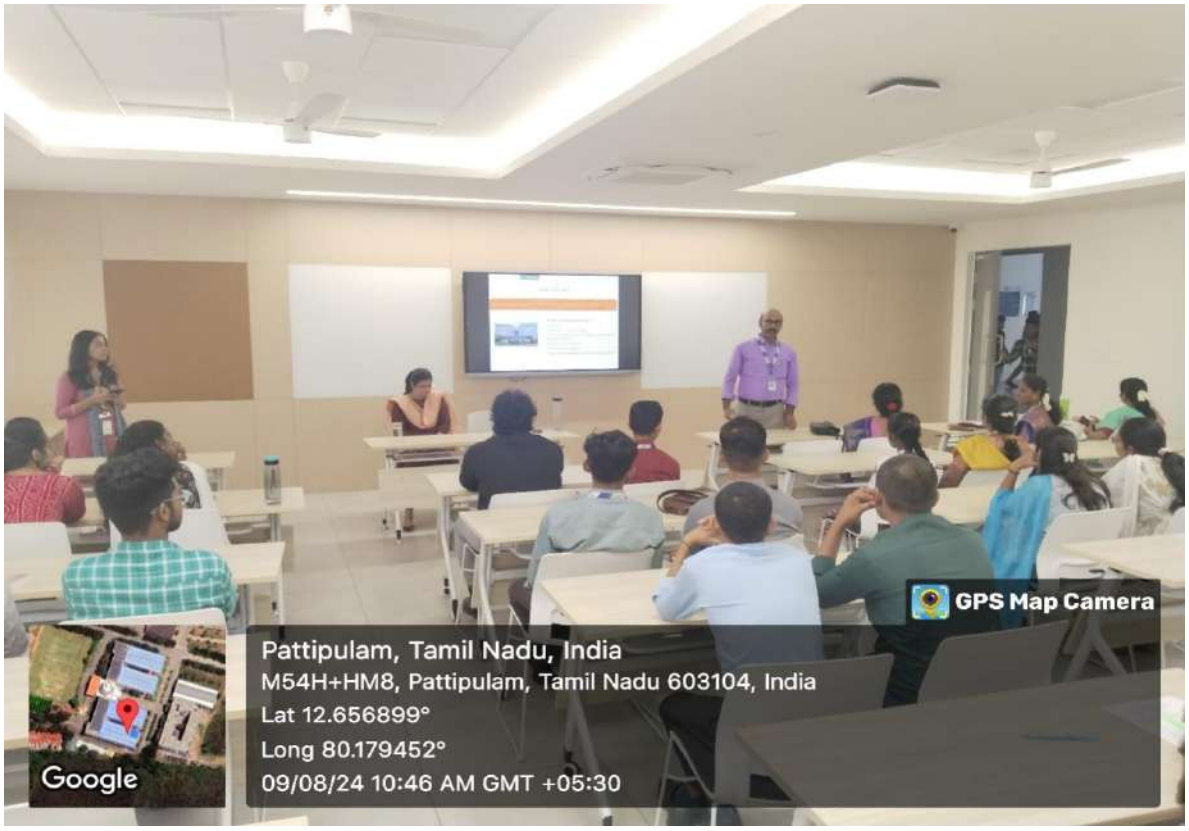
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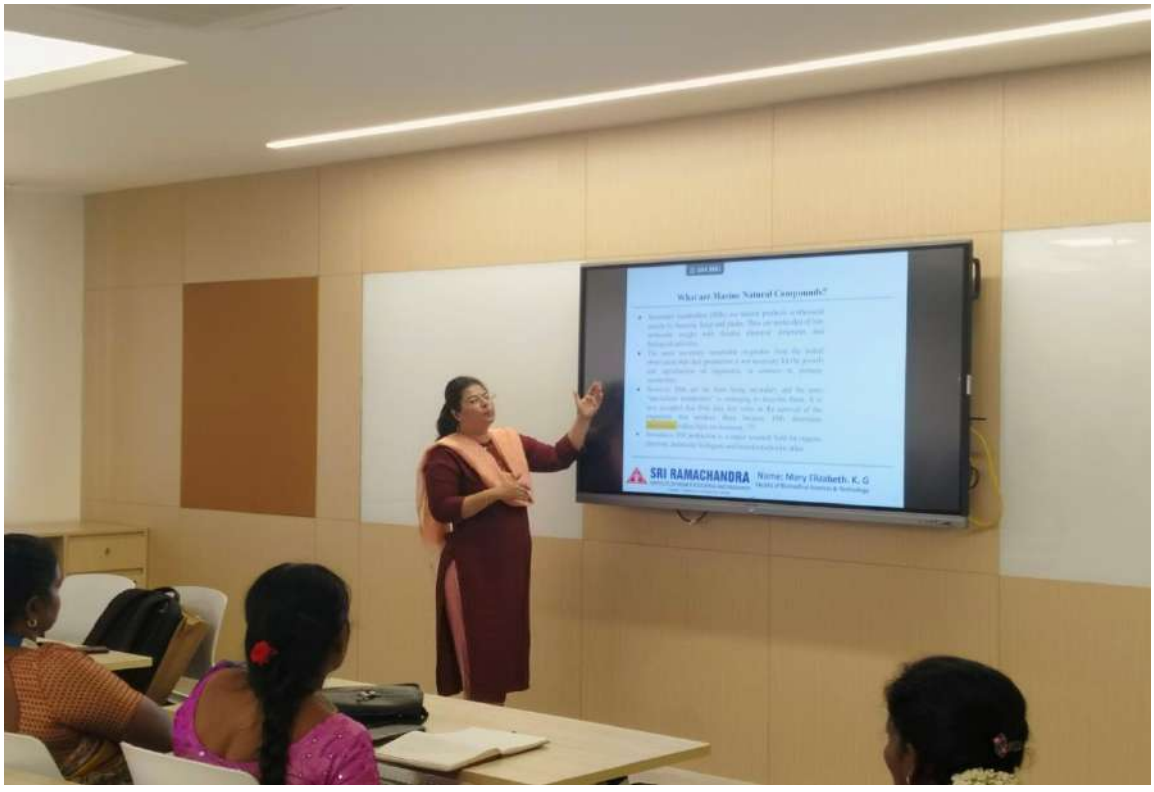
What are Marine Natural Compounds?
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