of various bioactive metabolites. The unique mangrove environment has become the targeted area for the discovery of novel *Streptomyces*. This ‘rainforest of the sea’ often experiencing unpredictable environmental changes that could drive species diversity and stimulate the synthesis of unusual bioactive metabolites. This study was aimed to explore the antioxidant and cytotoxic potentials of novel *Streptomyces* species discovered from the soil of a mangrove forest in Sarawak, Malaysia.

**Methods** Two novel *Streptomyces* species were isolated from an under-explored mangrove soil collected at Kuching (Sarawak) and identified using a polyphasic approach. The novel *strepotmyces*, strains MUSC 1T and MUSC 93T, were subjected to fermentation and methanol extraction as shown in figure 1 (figure 1). The methanolic extracts of both strains were screened for *in vitro* antioxidant potential and cytotoxic effect against human colon cancer cell lines: HCT-116, HT-29, Caco-2, and SW480.

**Results** Methanolic extracts of *Streptomyces monahensis* sp. nov. (MUSC 1T) and *Streptomyces colonomantis* sp. nov. (MUSC 93T) exhibited significant antioxidant activity, for instance, MUSC 1T and MUSC 93T (at 2 mg/mL) exerted 83.80 ± 4.80% and 83.32 ± 2.62% SOD-like activity respectively. Furthermore, both strains demonstrated promising cytotoxicity against the tested colon cancer cell lines. MUSC 93T showed the highest cytotoxic activity against SW480 cells; resulting in the lowest cell viability of 63.6 ± 3.0% after treated with the extract. Extract of MUSC 93T was also further tested against human normal colon cancer CCD-18Co cells. The result revealed that there is no significant cytotoxic effect of MUSC 93T extract on CCD-18Co cells.

**Conclusions** The outcomes of this study demonstrated the anti-colon cancer potential of novel streptomyces, thus, highlighting the importance of novel strain discovery from under-explored mangrove environment and their role as high-quality resources for chemo-preventive drug discovery.

**IDDF2019-ABS-0327 HIGH-FAT DIET-INDUCED GUT MICROBIOTA DYSBIOSIS ACTIVATE MCP-1/CCR2 PATHWAY AND PROMOTE INTESTINAL CARCINOGENESIS**

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**Background** Oesophageal cancer (OC) is the eighth most common cancer globally. Lysophosphatic acid (LPA), a bioactive glycerophospholipid, mediates multiple biological processes and diseases, including inflammation and cancer. The expression of autotaxin (ATX), which catalyzes the production of LPA, and LPA receptors are up-regulated in several types of cancer, including ovarian and colon cancer. However, the importance of LPA and LPA receptors in the development and progression of oesophageal cancer is unclear. In this study, we sought to determine whether LPA and LPA receptors regulate the progression of oesophageal cancer.

**Methods** The expression level of ATX was analyzed in tumor tissues in comparison with adjacent normal tissues of OC patients by immunohistochemistry and the expression level of different LPA receptors (LPA1-LPA6) was determined by RT-PCR. Then we examined the potential role of LPA in oesophageal cancer progression by administering LPA(5μM) to oesophageal cancer cell lines KYSE30 and TE-2. Cell proliferation was analyzed by Cell Counting Kit-8 proliferation assay, EdU labeling and colony formation. Wound-healing assay and transwell assay was used to determine the metastasis of OC cell lines. Furthermore, we knockdown LPA1 and LPA2 respectively to explore which receptor involved in the effect of LPA. Western Blot was used to detect the signaling pathway activated by LPA.

**Results** A significant high expression of ATX was found in OC tissues. The expressions of LPA1 and LPA2 were also much higher in KYSE30 and TE-2 compared with HET-1a (normal esophagus epithelial cell lines). Administration of LPA remarkably increased cell proliferation and metastasis in OC cell lines. Furthermore, Knockdown of LPA1 abolished the effect of LPA on promoting oesophageal cancer. In addition, western blot results showed the activation of AKT(p-AKT) was induced by LPA in OC cells. And the PI3K inhibitor LY294002 inhibited both LPA induced AKT activation and cell proliferation in ESCC cells.

**Conclusions** These results indicated that LPA might regulate the progression of oesophageal cancer by activating PI3K/AKT signaling pathway via LPA1.