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## LIPIDOMIC ANALYSIS TO ENHANCE THE UNDERSTANDING OF CHINESE HAMSTER OVARY CELLS

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Chinese Hamster Ovary (CHO) cell lines are common hosts for the production of biotherapeutic proteins. Achieving high level of specific protein production by CHO cell lines remains a challenge. In order to address this issue, we are incorporating lipidomic analyses to study the role of lipids played in CHO-S cells.

In our study, we have applied chromatography (TLC) methods for lipid analysis in terms of lipid polarity. For polar lipids, 2-D HPTLC (2-dimensional high performance TLC) was used instead of conventional 1D- TLC by virtue of its high separation capacity. The eluting solvent system was optimized for the 1<sup>st</sup> and 2<sup>nd</sup> dimension, respectively. Neutral lipids were separated on 1-D HPTLC with the optimal elution solvent of hexane-diethyl ether-acetic acid. The lipid spots on the TLC plates were stained by 0.2% of 2,7-dichlorofluorescein dissolved in ethanol solution and illuminated with UV. Multiple lipid standards were also run to correctly identify the lipid spots and the fluorescence of lipid spots was semi-quantitatively measured with ImageJ.

By optimization of TLC conditions, the lipids of CHO-S cell line were separated successfully and the lipid contents were semi-quantified. From neutral lipids result, we observed high level of certain lipids in CHO-S cell lines. We will further investigate which lipid play a key role in various cell processes.