By comparing the metabolic profiles of granulosa cells from normal ovaries and those from women with Polycystic ovary syndrome (PCOS), one should be able to see differences in the active pathways can be demonstrated. Metabolomic techniques may permit pinpointing of metabolic cycles which are inactive or active in the polycystic ovary.

Polycystic ovary syndrome is a common disease in pre-menopausal women. There is much debate as to whether PCOS is a single disease or a combination of several disorders. Insulin resistance and hyperinsulinaemia are well recognized characteristics of anovulatory women with PCOS. Granulosa cells are somatic cells found closely associated with the developing female oocyte gamete. Granulosa cells were extracted from follicular fluids from normal and PCOS patients, then cultured and treated with insulin. After 4 hours incubation with insulin, the cell extract's and media were stored, freeze dried and MR spectra were obtained using a Bruker 600 MHz spectrometer (pulse angle 45; repetition time, 3.5s).

The results from this study show that metabolomics and the examination of metabolic profiles of granulosa cells could be an important part of an integrative approach for assessing the possible causes of PCOS polycystic ovary syndrome.