Blood cells

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High-resolution respirometry: Blood cells and acute pancreatitis

Mitochondrial dysfunction in peripheral blood mononuclear cells in early experimental and clinical acute pancreatitis

Mandira Chakraborty [a] [1] ✉, Anthony J.R. Hickey [b, c, 1], Maxim S. Petrov [a], Julia R. Macdonald [a], Nichola Thompson [a], Lynette Newby [d], Dalice Sim [e], John A. Windsor [a], Anthony R.J. Phillips [a, b, c]

Increased mitochondrial respiration in patients with acute pancreatitis

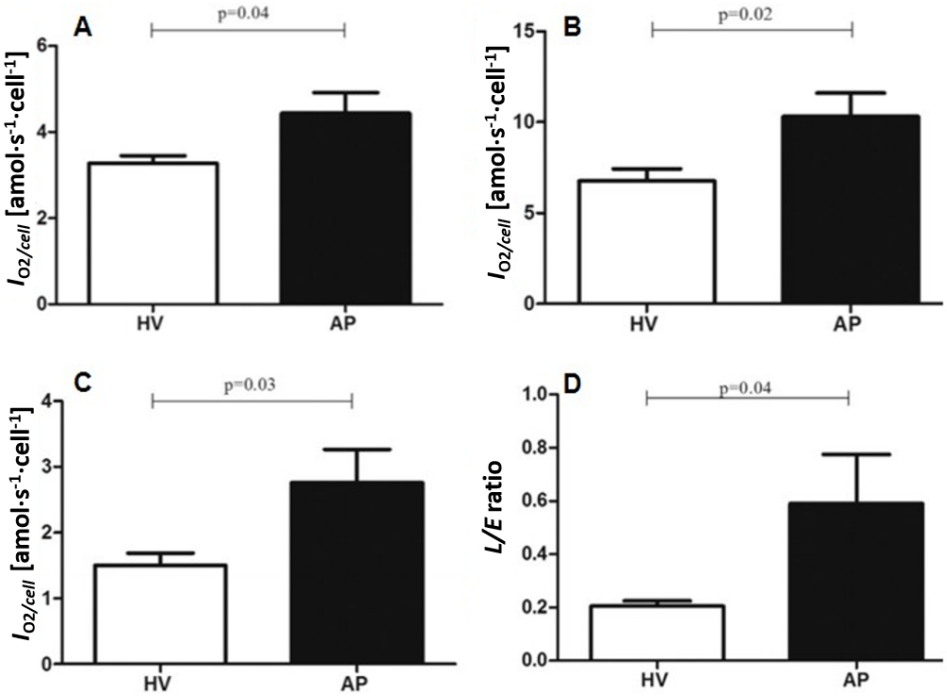

Figure 1. Peripheral blood mononuclear cell (PBMC) respiration of healthy volunteers (HV, white bars, *N*=15) and patients with mild acute pancreatitis (AP, black bars, *N*=18) measured as O_2 flow ($I_{O2/cell}$).
(A) ROUTINE-respiration; **(B)** NS-pathway OXPHOS capacity; **(C)** NS-pathway LEAK(Oligomycin); **(D)** LEAK-control ratio (*L/E*); data are expressed as mean ± SEM.

Mitochondrial respiration of PBMCs can be used to monitor clinical acute pancreatitis: mitochondria were dyscoupled resulting in inefficient oxidative phosphorylation.

It will be important to extend these studies on mitochondrial functions in mild acute pancreatitis to include severe cases and correlate results with disease progression and response to treatment.

Reference: Chakraborty M, Hickey AJ, Petrov MS, Macdonald JR, Thompson N, Newby L, Sim D, Windsor JA, Phillips AR (2016) Mitochondrial dysfunction in peripheral blood mononuclear cells in early experimental and clinical acute pancreatitis. Pancreatology 16:739-47.

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Oroboros Instruments

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