

Ascorbate abrogates microparticle generation and vascular injuries with high pressure exposure

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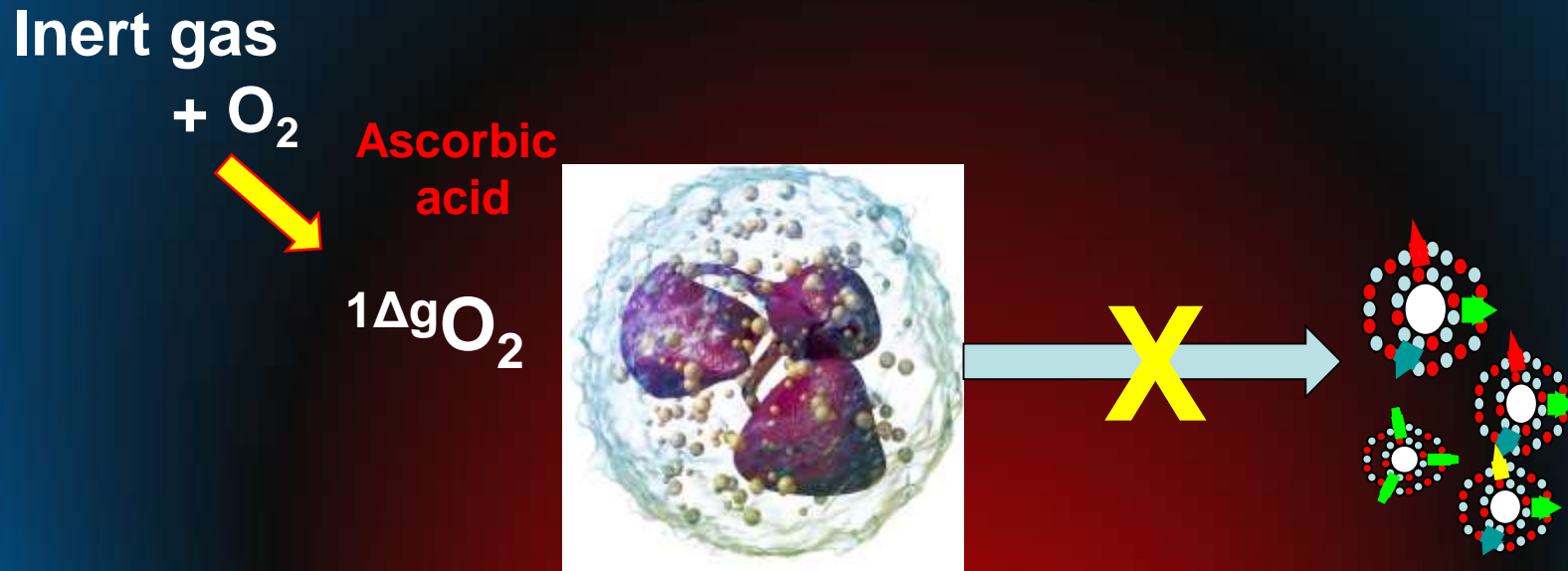
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Circulating microparticles appear to cause some of the insults following decompression stress. MPs are elevated in animals and humans after simulated or *bona fide* underwater diving .

Ascorbic acid inhibits ex vivo high gas pressure-induced MPs generation by neutrophils (J Biol Chem 289: 1183, 2014).


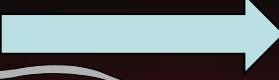
This study evaluated whether AA supplementation inhibits MPs elevations and inflammatory changes in mice.



DOES AA INFLUENCE DECOMPRESSION-INDUCED MPs & VASCULAR INJURY?

Control   **PMN, MPs, Vascular leak**

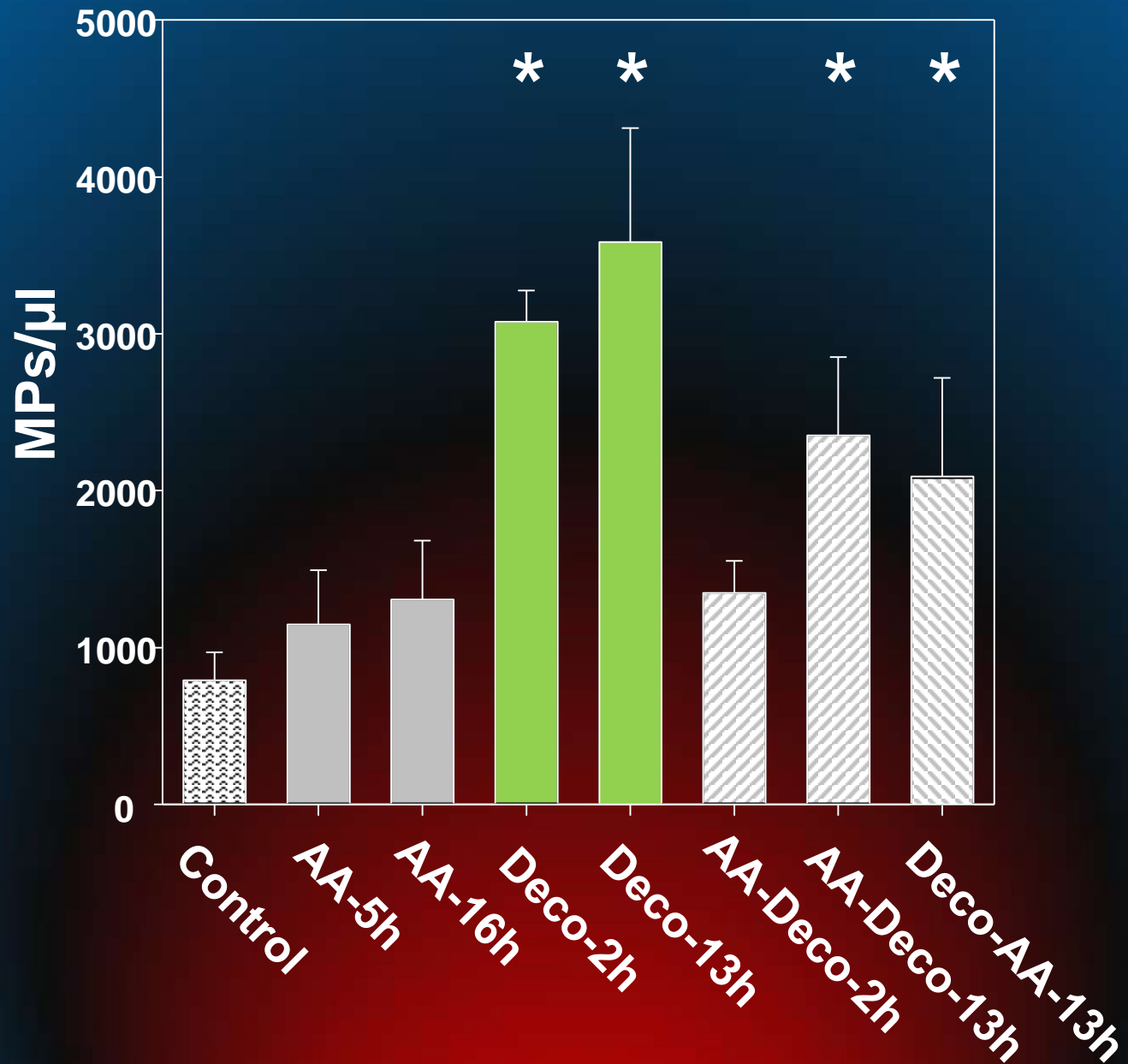
AA 500 mg/kg IP   **PMN, MPs, Vascular leak**

100 psi AIR x 2 Hrs   **PMN, MPs, Vascular leak**

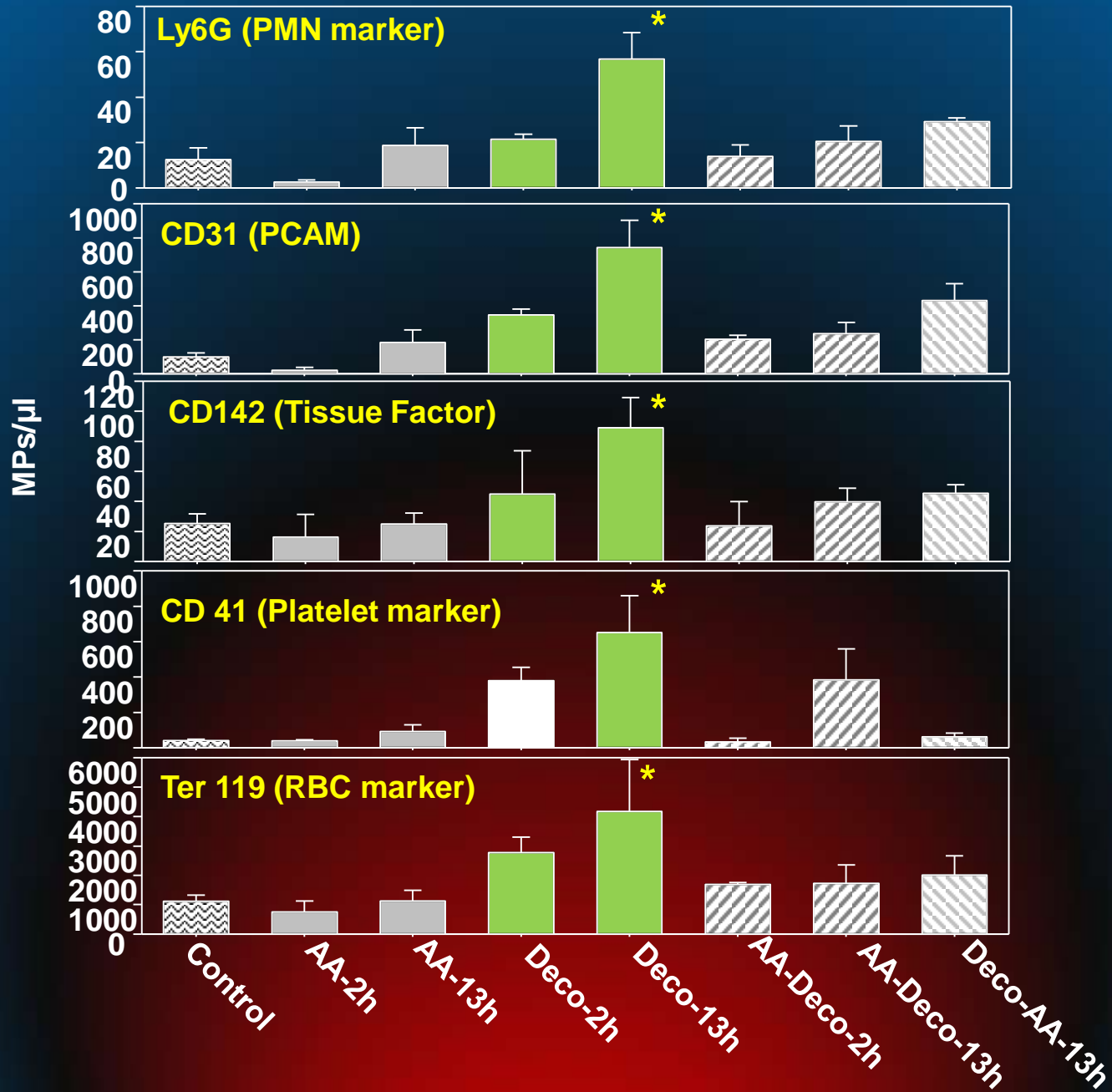
AA, then
100 psi AIR x 2 Hrs   **PMN, MPs, Vascular leak**

100 psi AIR x 2 Hrs
Then, AA   **PMN, MPs, Vascular leak**

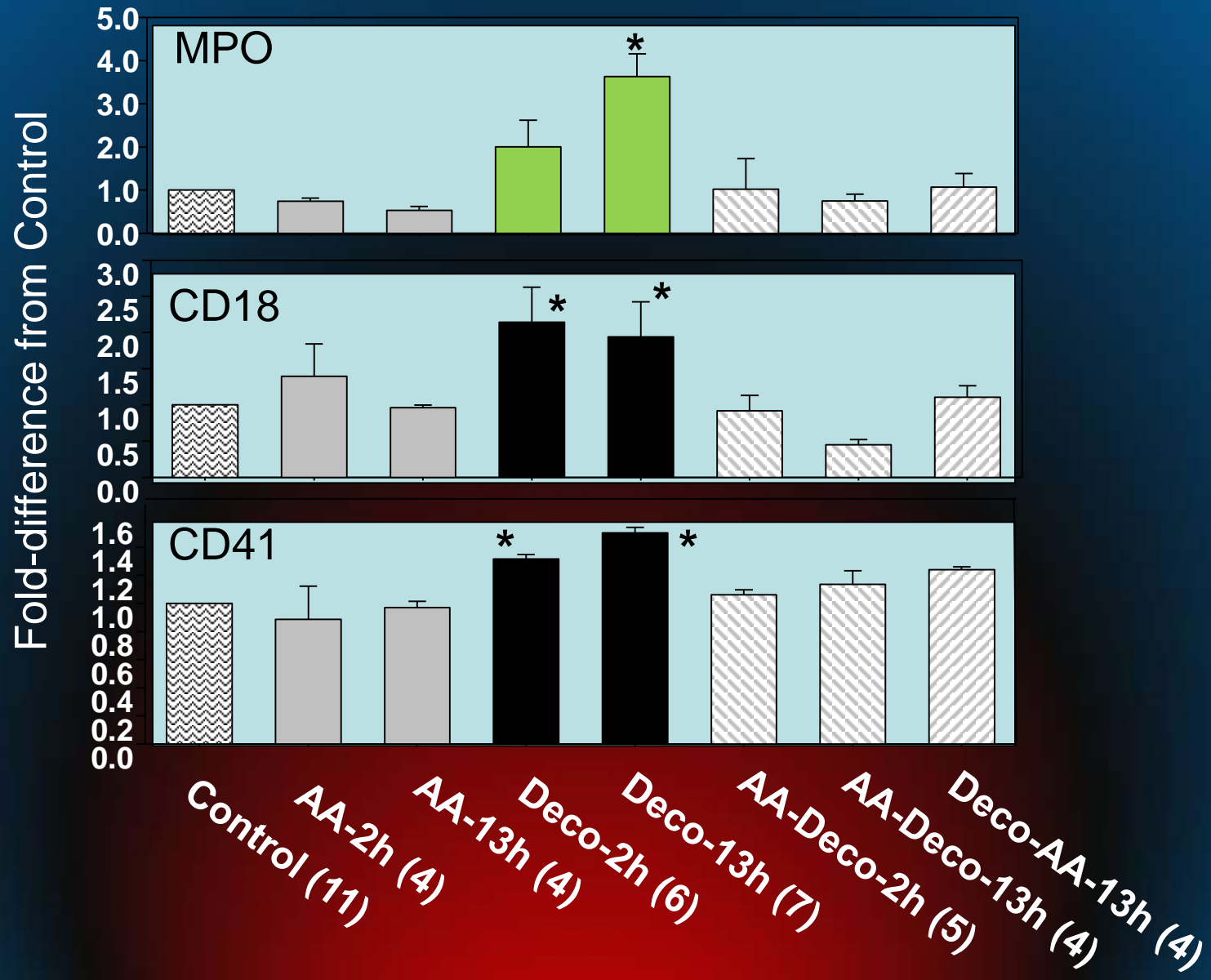
Circulating microparticles



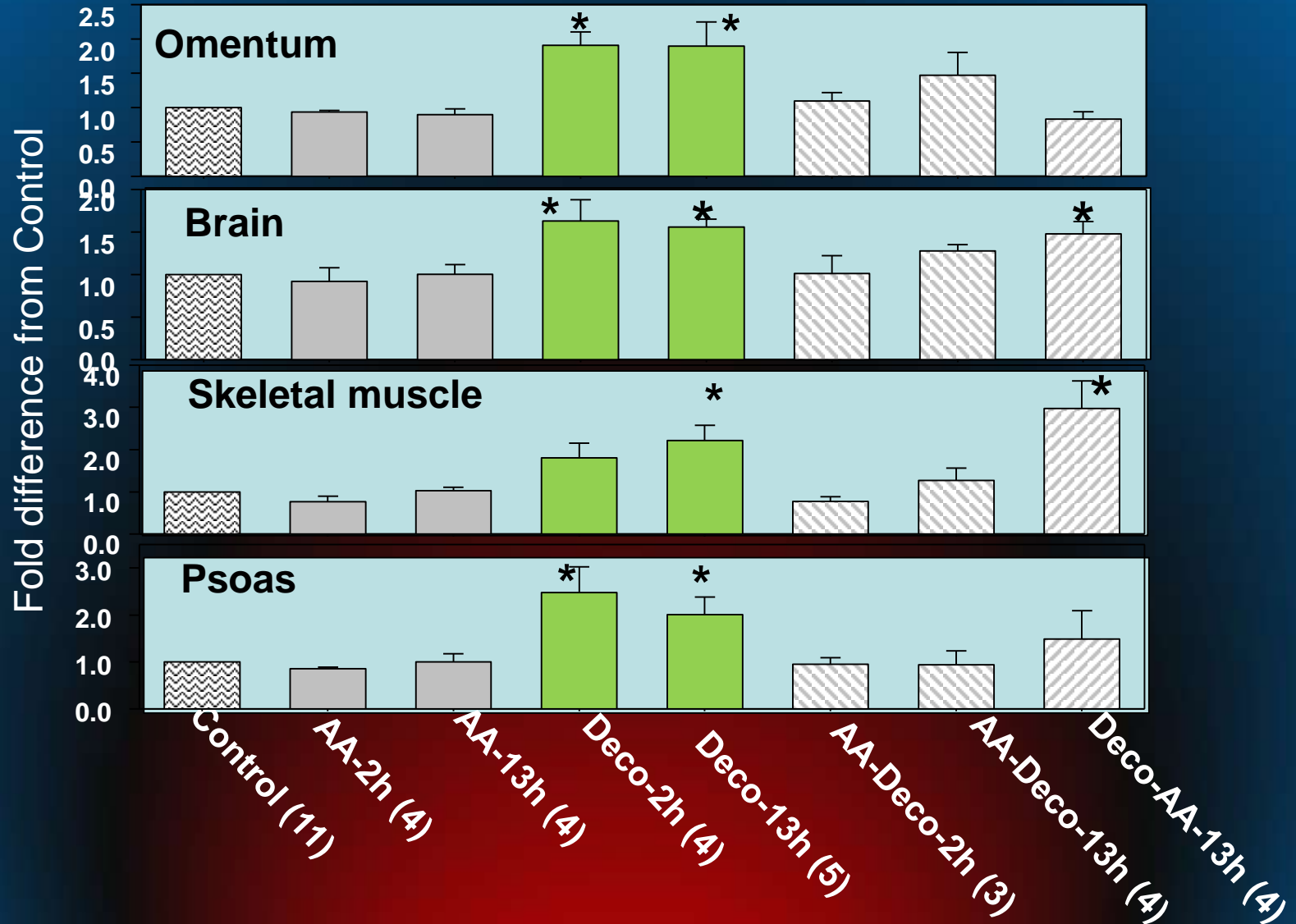
Circulating microparticle Sub-types



Neutrophil activation



Vascular leak (2×10^6 Da dextran)



CONCLUSION:

The findings support the idea that MPs production occurring with exposures to pressure is an oxidative stress response. Anti-oxidants may offer protection from pathological effects associated with decompression.

**MPs production is an oxidative stress response,
anti-oxidants protect from some pathological effects.**

