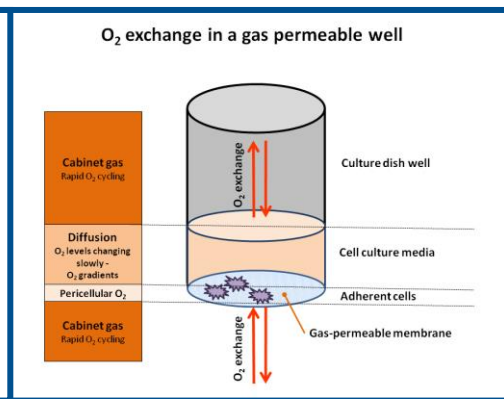
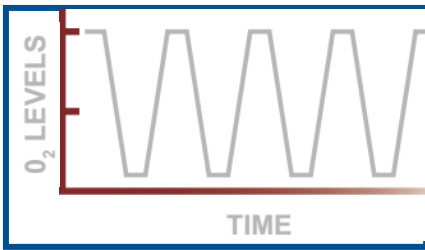


Turn-Key System in a Glove Box

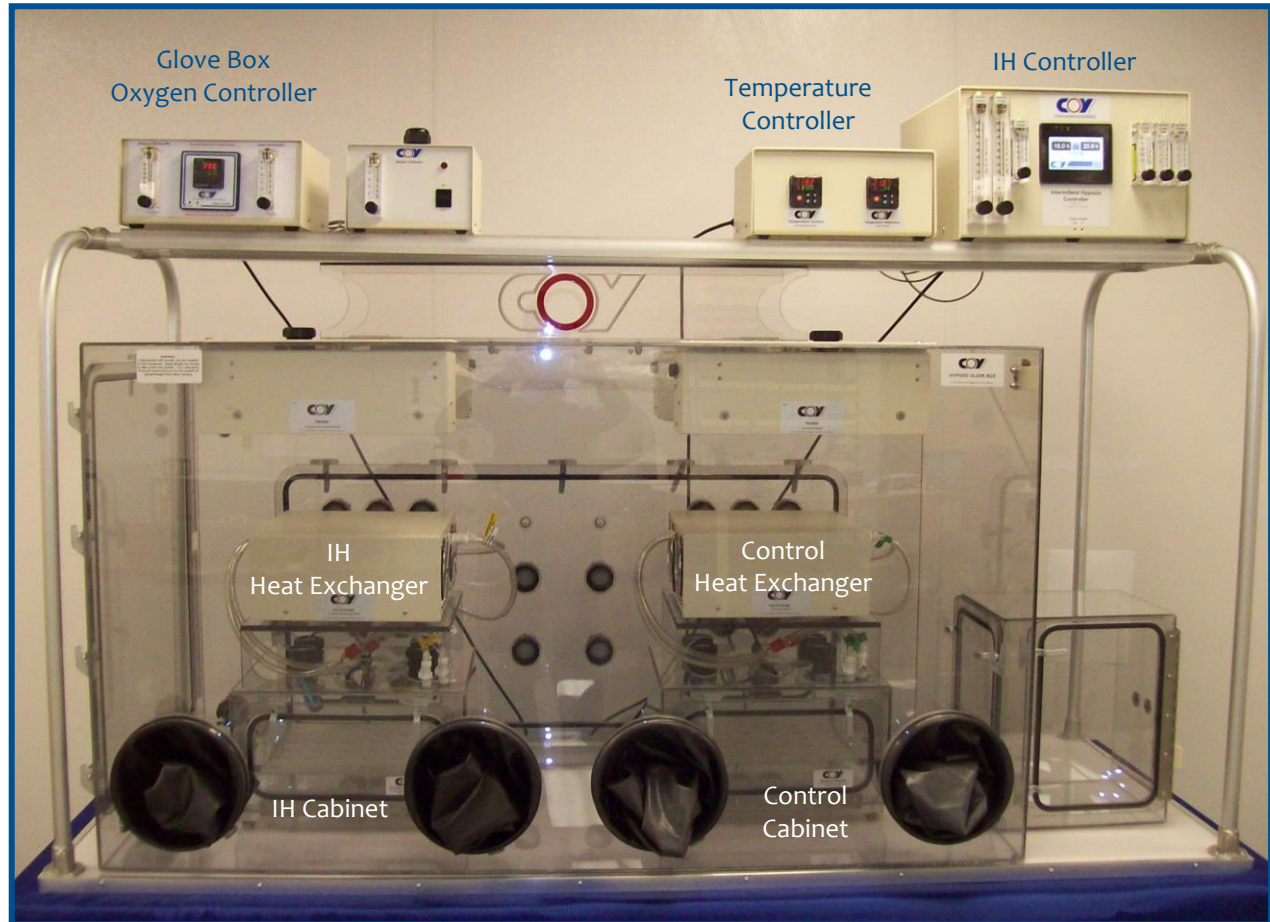


- Touch screen interface for O₂ profile programming
- Utilizes exclusive Coy sealed Gas Permeable Plates
- System Versions available for use in incubators or ovens
- Options available for running control experiment in parallel with intermittent hypoxia experiment



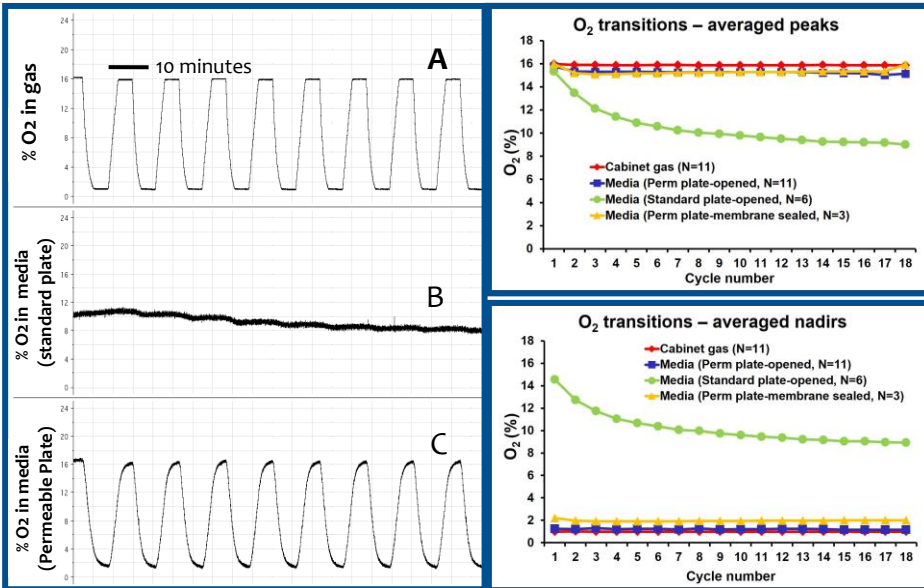


Complete Glove Box Configuration for Parallel Control & IH Experiments



- Cabinets for Intermittent Hypoxia (IH) & Control Experiments are in an O₂ controlled, heated glove box
- Program desired IH O₂ transitions through touch-screen interface on IH Controller – Model P
- Gas Permeable Plates rapidly transfer O₂ to the cells, unlike standard plates that rely on diffusion of O₂ through media
- Cells only experience desired experimental conditions as they are not brought into lab environment
- Confounding Effects from varying physical parameters eliminated as these parameters are maintained during O₂ cycling:
 - Temperature
 - Pressure
 - Media volume
- Control experiment performed in parallel with O₂ level as only variable different from IH experiment

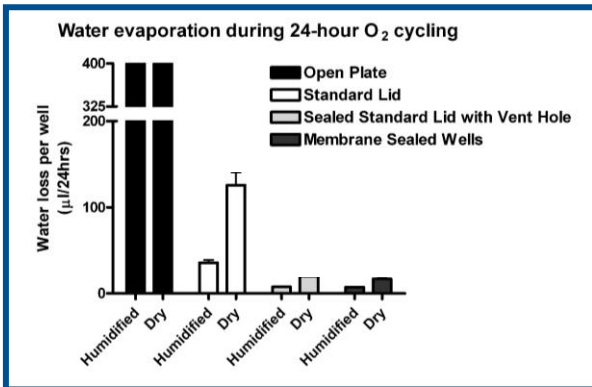
Verification of Physical Parameters



O₂ levels in permeable plates matched gaseous levels

Direct comparison of O₂ levels in the gas (A), in media in a standard plate (B) and in media in the Permeable Plate (C). Plates open with humidified gas except where noted. Measurements taken at bottom of the wells.

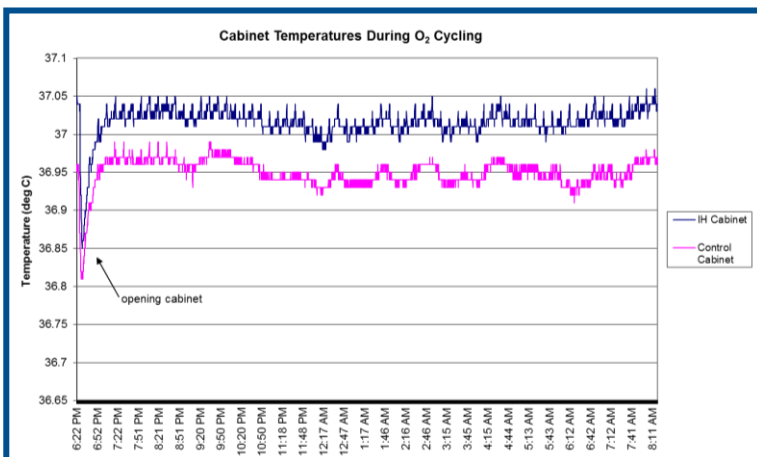
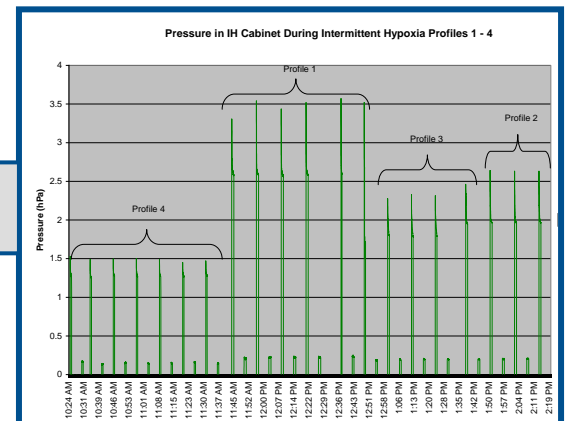
O₂ and Evaporation Graphs courtesy of Larissa A. Shimoda & Jan Polak at Johns Hopkins School of Medicine, Baltimore MD, USA



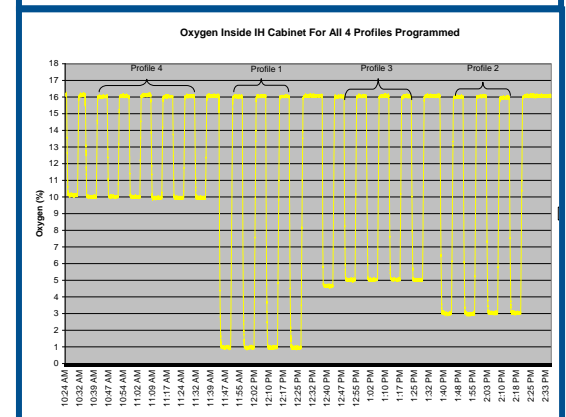
Insignificant Evaporation in “Sealed” Permeable Plates (4-5%) during Cycling in dry Cabinet

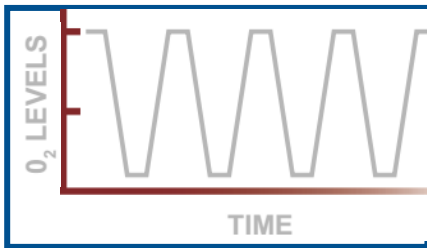
24-well plates w/400ul water cycled 16% to 1% O₂ w/ 2 min ramps & 3 min soaks.

Cabinet pressure low during O₂ cycles
1 hPa = 1 mbar. <10 mbar = typical weather changes.



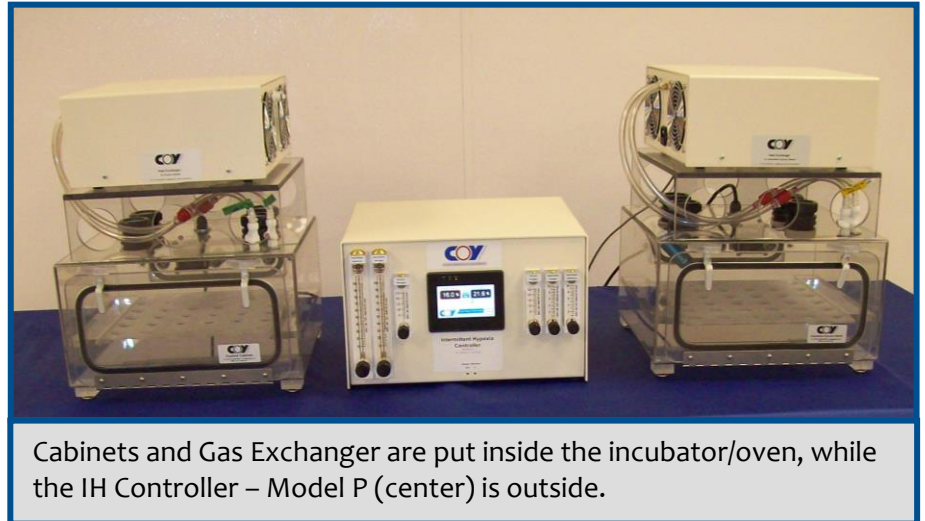
Control & IH Cabinets maintained temperature during O₂ Cycling
16 to 1% O₂ w/ 5 min soaks & 1 min ramps





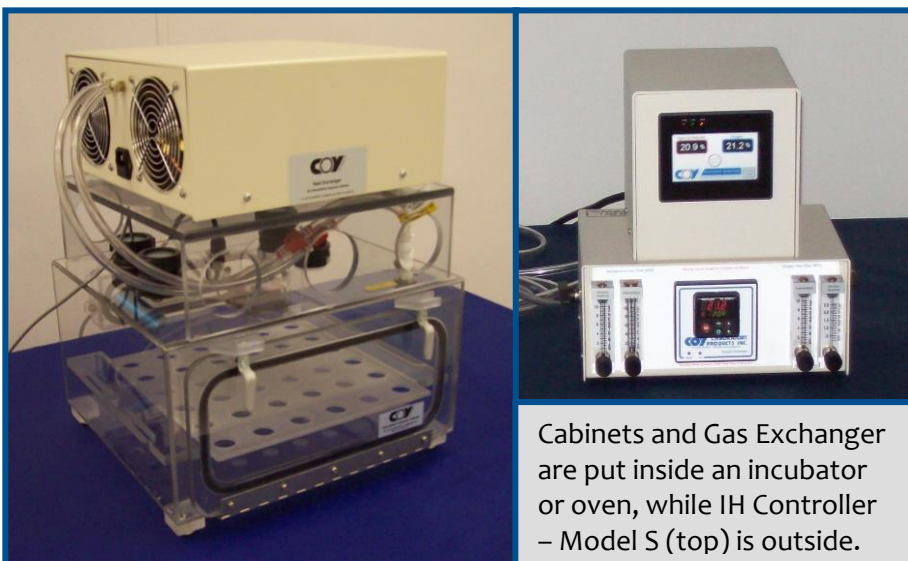
System Versions using an Oven or Incubator for the Heat Source

IH System with Parallel Control and IH Experiments



Cabinets and Gas Exchanger are put inside the incubator/oven, while the IH Controller – Model P (center) is outside.

- Use non-humidified incubator or oven as a heat source
- Program O₂ transitions through the touch screen interface
- Unlike other units, equal upward and downward ramp times possible
- Gas Permeable Plates rapidly transfer O₂ transitions to the cells
- For Control experiments, O₂ level is the only variable differing from IH experiments



Cabinets and Gas Exchanger are put inside an incubator or oven, while IH Controller – Model S (top) is outside.

IH System with Sequential Control and IH Experiments