

**BAKER**

*RUSKINN*



**RIEGER**

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THE BEST

TOOLS

FOR THE JOB

**SCI-tive PHYSIOLOGICAL  
OXYGEN WORKSTATIONS  
FOR CELL THERAPY AND  
STEM CELL RESEARCH**

A RANGE OF CLOSED, CONTINUOUS  
CELL CULTURE SYSTEMS PROVIDING  
STABLE 'IN-VIVO' CONDITIONS.



## IMPROVE YOUR RESULTS

### Experience the Industry-Leading Baker Ruskin Physiological Oxygen Workstations

Baker Ruskin physiological oxygen workstations have been the trusted choice for laboratories around the world since 1998. Our workstations are installed in more than 40 countries - and more than 1,200 research publications feature experiments performed in the Baker Ruskin technology.

Our physiological oxygen workstations precisely replicate low-oxygen 'in-vivo' physiology providing the ideal research platform for cell biologists and cancer researchers. The workstations provide accurate, stable, and user-defined oxygen, carbon dioxide, temperature and humidity control, providing the optimal environment for cell culture and translational research.

### Physoxic Cell Culture: A Growing Trend for Stem Cell Expansion

Research interest in hypoxia has grown and gained momentum in the last decade because of its key role in controlling tumorigenesis, angiogenesis, diabetes, aging, and stem cell development. Human cells exist in a physiological environment of <15% oxygen - significantly lower than ambient or atmospheric conditions (21% oxygen).

Typical cell culture methods involve isolating cells from a physiological state and then analyzing them in "bench-top conditions". This creates stress for the cell and introduces unknown outcomes in cell expression and morphology.

## GET BETTER RESULTS WITH A BAKER RUSKINN PHYSOXIA WORKSTATION

Maintaining 'in-vivo'-like conditions using a hypoxia chamber reduces oxidative stress and gives you better results. For example, expanding mesenchymal stem cells within one of our physiological oxygen workstations resulted in an increased frequency of colony forming units (CFU) isolation, increased number of cells per flask, and reduced variability across cells, when compared to a typical "open" culture environment using a CO<sub>2</sub> incubator and biosafety cabinet. (BMP2 repression and optimized culture conditions promote human bone marrow-derived mesenchymal stem cell isolation. Regen. Med. (2015) 10(2), 109-125, Dr. Nicholas Forsyth et al).

1

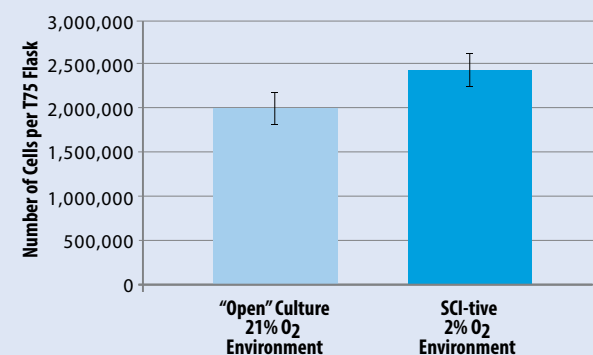
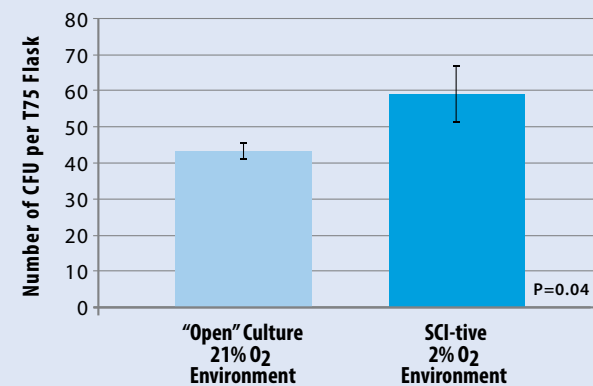
A 50% increase in number of CFUs was shown when using a SCI-tive physiological oxygen workstation.

2

A 15% increase in number of cells per flask was shown when using a SCI-tive physiological oxygen workstation.

3

- Results for mesenchymal stem cell expansion reveals:
  - Optimized frequency of CFU isolation.
  - Optimized cell numbers (per flask).
  - Reduced variability across cells recovered.
  - Reduced transcriptional alteration.



## SCI-tive - PHYSOXIA WORKSTATIONS

The SCI-tive range of advanced physiological workstations are designed to mimic 'in-vivo' conditions providing a continuous cell culture environment which eliminates cellular stress linked to variations in temperature, pH and oxidation. With the SCI-tive, you can study even the most complex cell interactions under mimicked physiological oxygen conditions. With more than a decade of customer feedback and experience, our workstations have been refined to meet your specific needs.

The SCI-tive range of advanced physiological oxygen workstations are designed to mimic 'in-vivo' conditions.

Optional HEPA filtration system installed in a SCI-tive workstation - provides a Class 4 HEPA filtered atmosphere within the workstation.



### Complete "Lab In a Box"

- Large incubated working area allows incubation, passaging, media transfers and cell culture.
  - External Dimensions: 1660 mm (W) x 826 mm (D) x 1077 mm (H).
  - Interior Dimensions: 1200 mm (W) x 600 mm (D) x 620 mm (H).
  - Up to 180 T75 Flasks working capacity.
  - Large pass-through interlock easily holds a variety of flasks, dishes and tubes.
  - Interlock Dimensions: 270 mm (W) x 200 mm (D) x 210 mm (H), >21.9L
  - Interlock Capacity: 15 x T75 Flasks.
- Optional built-in HEPA filtration system for main workstation.

### Accurate & Stable Environmental Control

- O<sub>2</sub> stability from 0.1% (anoxia) to 20.9% (ambient) in 0.1% increments (can reach 23.0% using separate 25% O<sub>2</sub> cylinder).
- CO<sub>2</sub> stability from 0.1% to 30.0% in 0.1% increments.
- Temperature control from ambient +5° C to 45° C.
- Humidity control from ambient to 85% RH.
- One touch O<sub>2</sub> sensor calibration.

### Economic & Reliable for Long-Term Savings

Minimal maintenance and downtime. Annual and biennial preventative maintenance kits available.

### Direct Access with Minimal Disruption

Maintaining a stable environment can reduce stress in cells and help ensure that your cell or tissue culture is expressing correctly.

In a CO<sub>2</sub> or CO<sub>2</sub>/O<sub>2</sub> incubator, variability in temperature and CO<sub>2</sub> levels occur every time the door is opened.

With SCI-tive workstations, you can get in and out of the incubated work area with limited disruption to this atmosphere. This means less stress on your cells.

Plus, unlike CO<sub>2</sub> or CO<sub>2</sub>/O<sub>2</sub> incubators, you can control oxygen levels with the Baker Ruskin workstation.

See comparison on the back of this brochure!

## CONVENIENT & COMFORTABLE TO USE

The SCI-tive physiological oxygen workstation is specifically suited for cell and translational research work with complex incubations and manipulations being performed under the most ideal physiological and hypoxic conditions.

- Quick and Easy Direct Hand Access with our new **Ezeeyin Glove Ports** offering a choice of entry methods to suit your experiments:-
  - a. Ezee Sleeves/gloveless cuff system allowing access with less than 20 seconds
  - b. Ezee Sleeves/Ezee Plug gloveless cuff system allowing access within less than 5 seconds
  - c. Gloved Sleeve System allowing access within 30 seconds when requiring more user protection.
- Read plates easily without O<sub>2</sub> exposure - energy-saving LED lighting for perfect illumination.
- Automatic and easy-to-access controls.
- Advanced integrated gas mixing system with touch screen simplifies calibration process, provides rapid equilibration, and facilitates the download of data.
- Cycle programming allows a user-defined timed sequence of up to 4 different O<sub>2</sub> and CO<sub>2</sub> concentrations.
- Removable front cover - allows easy access for cleaning or placing instrumentation into the unit.
- Three electrical power sockets within the work area.
- Optional HEPA filtration system providing a constant Class 4 HEPA filtered atmosphere within the work area to protect research from contaminants.
- Optional enhanced containment package provides added protection for user.
- Specially designed culture racks with light protective compartments as an option for individual T 75 or T 125 flasks.



## EASILY ACCOMMODATES YOUR ANALYTICAL TOOLS

SCI-tive is designed to accommodate a variety of analytical instrumentation such as cell imaging systems, inverted microscopes, plate readers, cell based assay platforms, bioenergetics instrumentation, centrifuges, bioprinters and so on. There is ample space on the work tray for cell manipulation and cell culture. All SCI-tive models have three internal power sockets and a universal multi-cable gland that can accept up to 6 different power cables through the side panel.

### Supported Microscopes and Cell Imaging Systems

Please ask us for a list of supported microscopes, we can adapt the front cover to accept oculars.

We recommend Lumascope 420/560/620/720 range of ocular free inverted cell microscopes from Etaluma Inc.



## SCI-tive STANDARD FEATURES

- Internal HEPA filtration to Class 4 (ISO 14644-1)
- Removable front
- 420L usable chamber volume
- Interlock has O<sub>2</sub> control and heating
- Ezeeyin Glove ports for direct hand access
- Detox sachet (large)
- Internal power sockets x3
- One narrow and one wide culture rack
- Vacuum port connector
- Gas sample port
- Multi-cable gland (up to 6 individual cables)

### Touchscreen Control:

- O<sub>2</sub> control (from 0.1% to 23.0% in 0.1% increments)
- CO<sub>2</sub> control (from 0.1% to 30.0% in 0.1% increments)
- Ultrasonic Humidity control (from ambient to 85% RH)
- Temperature control (5 °C above ambient to 45.0° C in 0.1° C increments)
- Data log (one data set per minute, each set comprises: time, date, O<sub>2</sub> (set/actual), CO<sub>2</sub> (set/actual) humidity, temperature)
- Alarm settings
- Light control (on/off, dimming function)



## OPTIONAL ACCESSORIES

- Remote monitoring/remote control hardware module
- Internal monitor to view digital microscope images
- Stand (choice of static, manual/electric adjustable)
- Vacuum port connector (one supplied as standard)
- Gas sample port
- Multi-cable gland (up to 6 individual cables) (one supplied as standard)
- Single Plate Entry System
- Ezee Cuff (Gloveless & Sleeveless Hand Entry)
- External HEPA containment package with rubber gloves
- Cooling accessory
- Light protective cover

- Waste port (standard on some models)
- RH meter
- O<sub>2</sub> meter
- Culture rack (wide or narrow)
- Culture rack (light protective)
- Billups Modular Incubator chamber
- USB port (Power only)

### Gas Supply

- N<sub>2</sub>, CO<sub>2</sub>, Compressed Air (Use 25% O<sub>2</sub> instead of compressed air, if working between 18.0% to 23.0% O<sub>2</sub>).

## SCI-tive SINGLE

The SCI-tive Dual workstation provides the same innovative features and benefits as the SCI-tive, except there are two chambers with individually controlled atmospheres.

The left-hand chamber is identical to the single SCI-tive chamber discussed on the previous pages, but the right-hand chamber varies depending on the specific model.

Additionally the stand (and gas tight waste port) are standard on all of the SCI-tive Dual models. The right-hand chamber of the Asymmetrical Dual is built to accommodate larger inverted and atomic force microscopes.

## SCI-tive DUAL SYMMETRICAL AND ASYMMETRICAL



**Exterior Dimensions**  
2995 mm (W) x 826 mm (D)  
x 1077 mm (H)

**Internal Workstation Dimensions**  
Left Chamber (L):  
1200 mm (W) x 600 mm (D)  
x 620 mm (H)\*  
Right Chamber (R):  
1200 mm (W) x 600 mm (D)  
x 620 mm (H)

**Interlock Dimensions**  
270 mm (W) x 200 mm (D)  
x 210 mm (H)

**Interlock Capacity**  
15 T75 Flasks



**Exterior Dimensions**  
2815 mm (W) x 975 mm (D)  
x 1077-1195 mm (H)

**Internal Workstation Dimensions**  
Left Chamber:  
1200 mm (W) x 600 mm (D)  
x 620 mm (H)\*  
Right hand chamber (R)  
1020 mm (W) x 800 mm (D)  
x 808 mm (H)

**Interlock Dimensions**  
270 mm (W) x 200 mm (D)  
x 210 mm (H)

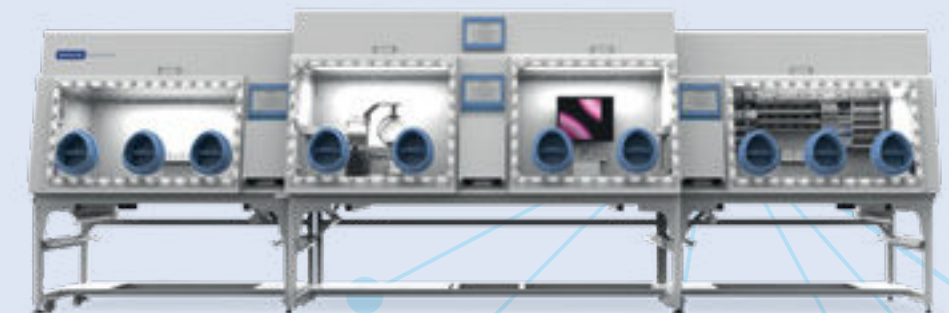
**Interlock Capacity**  
15 T75 Flasks

## SCI-tive QUAD

**Exterior Dimensions**  
5721mm (W) x 975mm (D) x 1077-1195mm (H)

**Internal Workstation Dimensions**  
Chamber 1:  
1200mm (W) x 600mm (D) x 620mm (H)  
Chamber 2:  
1020mm (W) x 800mm (D) x 808mm (H)  
Chamber 3:  
1020mm (W) x 800mm (D) x 808mm (H)  
Chamber 4:  
1200mm (W) x 600mm (D) x 620mm (H)

**Interlock Capacity**  
15 T75 Flasks



## SCI-tive PRODUCT SPECIFICATION SUMMARY

Model		SCI-tive	SCI-tive Dual Symmetrical L = left chamber R = right chamber	SCI-tive Dual Asymmetrical L = left chamber R = right chamber
External Dimensions	Width	1660 mm	2995 mm	2815 mm
	Depth	826 mm	826 mm	975 mm
	Height	1077 mm	1077 mm	1077 mm - 1195 mm
Internal Dimensions	Width	1200 mm	1200 mm (L & R)	1200 mm (L) / 1020 mm (R)
	Depth	600 mm	600 mm (L & R)	600 mm (L) / 800 mm (R)
	Height	620 mm	620 mm (L)* / 620 mm (R)	620 mm (L)* / 808 mm (R)
Maximum Capacity	T75 Flasks	592	592 (L) 592 (R)	592 (L) Varies (R)
Working Capacity	T75 Flasks	180	180 (L) 180 (R)	180 (L) Varies (R)
Interlock Dimensions	Width	270 mm	270 mm	270 mm
	Depth	200 mm	200 mm	200 mm
	Height	210 mm	210 mm	210 mm
Interlock Capacity	T75 Flasks	15	15	15
Interlock Time Cycle		60 sec.	60 sec.	60 sec.
Weight		230 kg	355 kg	355 kg

Baker Ruskinn is a global leader and supplier of anaerobic and precision low oxygen culture systems for microbiology and tissue/cell culture applications. Its advanced line of anaerobic chambers, physiological oxygen workstations and media conditioning solutions help improve research results by providing precisely controlled conditions for anoxic and low-oxygen studies.

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To learn how Baker Ruskinn products can benefit your research, visit [www.bakerruskinn.com](http://www.bakerruskinn.com).

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