



SCI-tive Hypoxia Workstations

A range of closed, continuous cell culture systems providing stable 'in vivo' conditions.

BAKER

RUSKINN

Improve Your Results

Experience the Industry-Leading Baker Ruskinn Hypoxia Workstations

Baker Ruskinn hypoxia 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 400 research publications feature experiments performed in the Baker Ruskinn technology.

Our hypoxia 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.

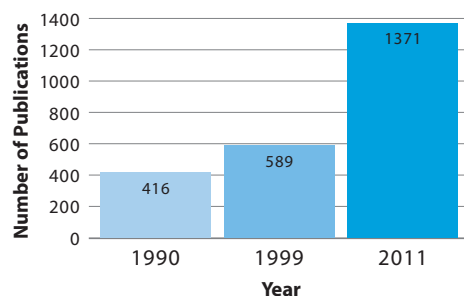


Hypoxic Cell Culture: A Growing Trend for Growing Cells

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 2-8% oxygen – significantly lower than ambient or atmospheric conditions (21% oxygen).

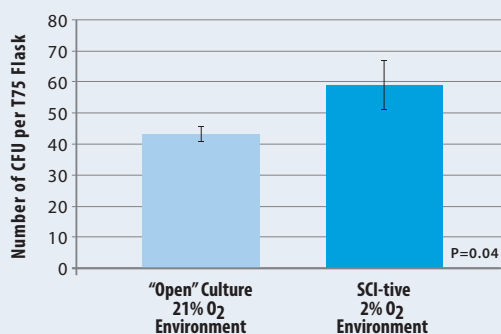
Typical cell culture methods involve isolating cells from a physiological state and then analyzing them in “bench-top conditions”. This creates stress for the cell and introduces unknown outcomes in cell expression and morphology.



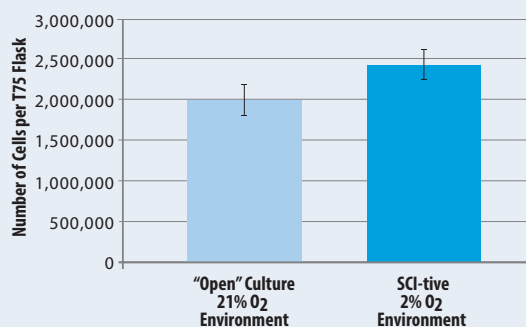
The growing trend in hypoxia research can be seen in the increase of the number of articles published with hypoxia, hypoxic or low oxygen in the article's keywords (Highwire Search Engine, Stanford University).

Get Better Results with a Ruskinn Hypoxic 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 hypoxia 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 CO₂ 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).



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



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

SCI-tive Hypoxia Workstation

The SCI-tive range of advanced hypoxic 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 perfect hypoxic or anoxic conditions. With more than a decade of customer feedback and experience, our workstations have been refined to meet your specific needs.

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), >11L
 - Interlock Capacity: 15 x T75 Flasks.
- Optional built-in HEPA filtration system for both main workstation and interlock.
- 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.

Accurate & Stable Environmental Control

- O₂ stability from 0.0% (anoxia) to 20.9% (ambient) in 0.1% increments (can reach 23.0% using separate 25% O₂ cylinder).
- CO₂ 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 O₂ sensor calibration

Economic & Reliable for Long-Term Savings

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



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



Optional HEPA filtration system installed in a SCI-tive workstation - provides HEPA-filtered air within the work area.

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 CO₂ incubator, variability in temperature and CO₂ 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 CO₂ incubators, you can control oxygen levels with the Ruskinn workstation.

See comparison on the back of this brochure!

Convenient & Comfortable to Use

The SCI-tive hypoxia 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 access - Ezee Plug™ / Ezee Sleeve™ gloveless cuffed system allows you get your hands inside the workstation in less than 20 seconds.
- Read plates easily without O₂ exposure - energy-saving fluorescent 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 O₂ and CO₂ 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 provides HEPA-filtered air within the work area to protect research from contaminants.
- Optional enhanced containment package provides added protection for user.



Video: Working in a SCI-tive Workstation



Ezee Plug™ system provides quick access to the SCI-tive work area.



Convenient storage keeps work area clear.



Removable front cover with triple glove ports makes the SCI-tive easy to use.

See how to work in a
SCI-tive workstation!

Scan the code or visit
<http://hub.am/TXzPuF>.



Easily Accommodates Your Analytical Tools

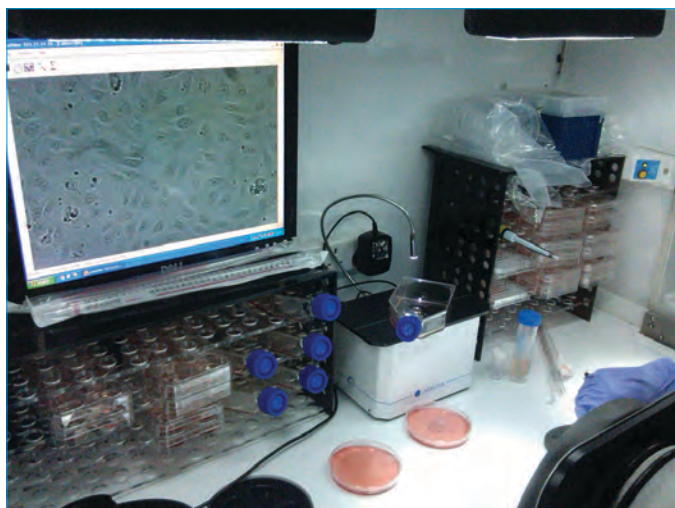
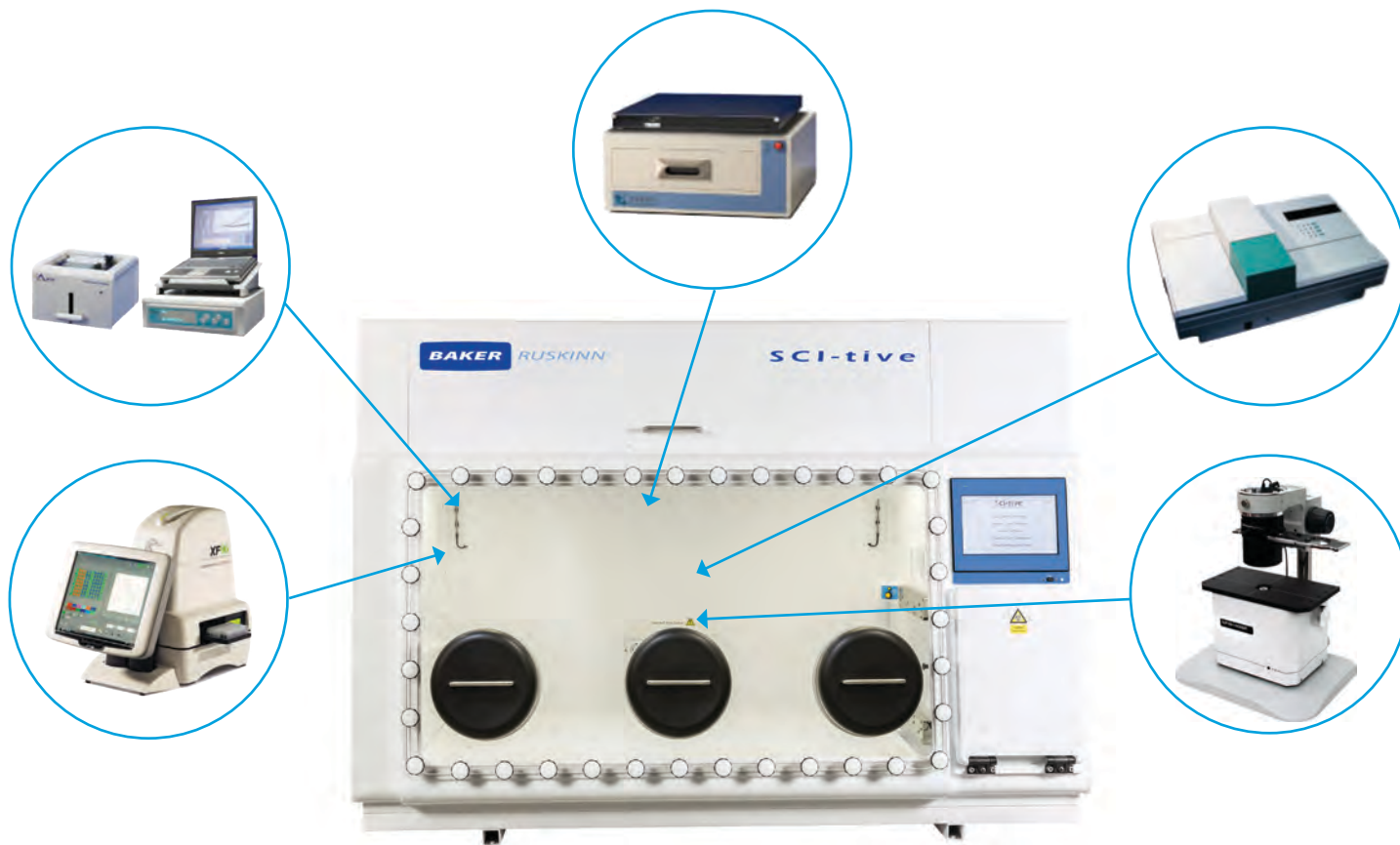
The SCI-tive can easily accommodate a variety of analytical equipment.

Examples are the LumaScope 400/500/600, Seahorse XF[®]24/ XF[®]96 Analyzer from Seahorse Bioscience and the IncuCyte™ Imaging System from Essen Bioscience. Various stereo and inverted microscopes are also easily integrated.

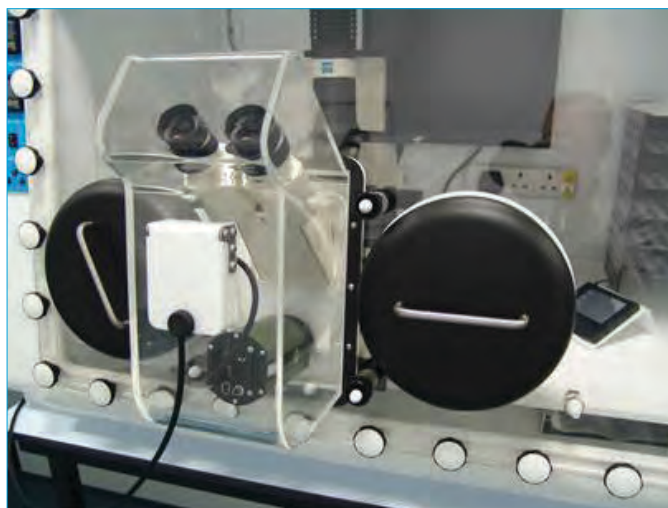
Supported microscopes

- Nikon® AZ100 MZ
- Olympus IX/SZX® series
- Zeiss Axio Observer and PrimaVert series
- Leica® DMB 6000
- Leica® M80/M205/DMB6000
- Lumascope 400/500/600

Please inquire for specific models or other types of microscopes. All microscope accessories (PCs, digital camera, monitor, imaging software, etc.) to be supplied by customer and specified at time of order.



SCI-tive with Etaluma Lumascope



SCI-tive with Zeiss Axiovert 40 CFL inverted microscope with oculars protruding through front cover.

SCI-tive Standard Features

Workstation:

- Stand (some models).
- Two “free-flow” incubation racks to optimize homogeneity.
 - 400 mm (W) x 168 mm (D) x 305 mm (H)
 - 300 mm (W) x 168 mm (D) x 305 mm (H)

Removable front cover with:

- Triple glove ports allowing Direct-hand access using Ezee Plug™ / Ezee Sleeve™ system.
- Single cable gland.
- Vacuum line port allows the attachment of a vacuum line to remove waste media from plates and dishes.
- Lower left hand panel fitted with 50mm universal multi-cable gland (allows up to 6 cables).
- Three electrical power sockets.

Gas Supply:

- Hypoxia 0.1% to 23.0% O₂; N₂, CO₂, Compressed Air. (Use 25% O₂ instead of compressed air, if working between 18.0% to 23.0% O₂)
- Anoxia (0.0% O₂): Add ANO₂ (H₂ < 5.5% in N₂).

Main Chamber

- O₂ control from 0.0% (anoxia) to 23.0% (ambient) in 0.1% increments

- CO₂ control 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. USB communications port.
- Minimum 30 days continuous storage of event log data via USB port. (one data set per minute, each data set comprises time, temperature, O₂%, CO₂%, humidity RH%)
- One touch calibration (O₂).
- On-screen fault assistance.

Interlock

- Interlock temperature control.
- Interlock O₂ control from 0-10% O₂.

Economic & Reliable for Long-Term Savings:

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

Alarms:

- Temperature: Visual and Audible.
- Humidity: Visual.
- Gas Low Pressure: Visual and Audible.

Optional Accessories

- Built-in HEPA filtration system for both main workstation and interlock.
- Gas sample port - enables O₂ or CO₂ meters to be connected, so samples of the workstation atmosphere can be checked.
- Adjustable Height Stand
- Gas tight waste port accessible from within the workstation (standard on some models). However if waste port needed, stand is always required.
- External Vibration isolation platform to minimize vibration entering workstation.
- Adjustable incubation tray - keeps micro-titre plates, flasks or dishes absolutely level.
- Gas level verification meter (e.g. Geotech 100) - monitors CO₂ and O₂ inside workstations, works under high humidity.
- Gas tank regulators and filter modules.
- 50mm universal multi-cable gland

- Palladium catalyst and anaerobic indicator strips (if running in anoxic mode).
- Cleaning kit containing Aquaguard™ and a wide variety of reagents for internal and external surfaces.

Enhanced Containment Package to reduce any workstation and specimen contaminants exhausting into the laboratory, includes:

- Three square panel exhaust HEPA air filters: One filter fits over the primary over-pressure exhaust valve, another over the secondary over-pressure system and a third over the interlock purge valve
- Three Hypalon-gloved sleeves replace the Ezee Plug™ / Ezee Sleeve™ gloveless system.

See the results from microbiological testing of the Ruskinn enhanced containment package. Scan the code to right or go to <http://hub.am/Z3WhOY>.



SCI-tive Dual

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

Exterior Dimensions:

- 2995 mm (W) x 826 mm (D)
x 1077 mm (H)

Internal Workstation Dimensions

- Left Chamber (L):
1200 mm (W) x 555 mm (D)
x 620 mm (H)*
- Right Chamber (R):
1200 mm (W) x 555 (D)
x 620 mm (H)

Interlock Dimensions

- 270 mm (W) x 200 mm (D)
x 210 mm (H)

Interlock Capacity

- 15 T75 Flasks



SCI-tive Dual Asymmetrical

Exterior Dimensions:

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

Internal Workstation Dimensions

- Left Chamber:
1200 mm (W) x 555 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

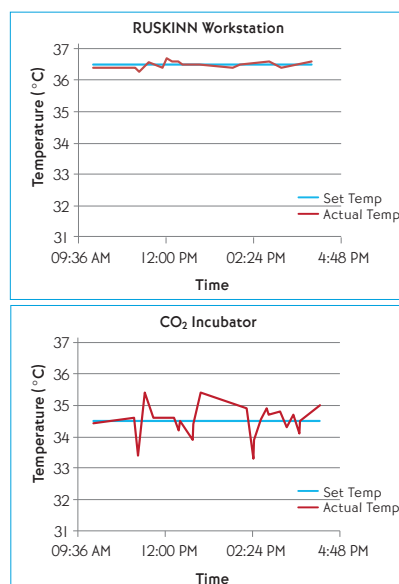


SCI-tive Product Specification Summary

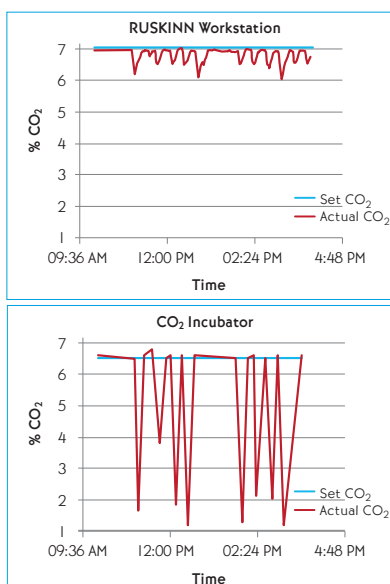
| Model | | SCI-tive | SCI-tive Dual Symmetrical L = left chamber R = right chamber | SCI-tive Dual Asymmetrical L = left chamber R = right chamber |
|----------------------|------------|----------|--|---|
| External Dimensions | Width | 1660 mm | 2995 mm | 2815 mm |
| | Depth | 826 mm | 826 mm | 975 mm |
| | Height | 1077mm | 1077 mm | 1077 mm - 1195 mm |
| Internal Dimensions | Width | 1200 mm | 1200 mm (L & R) | 1200 mm (L) / 1020 mm (R) |
| | Depth | 600 mm | 555 mm (L & R) | 555 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 | varies | varies |
| Working Capacity | T75 Flasks | 180 | varies | varies |
| 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 |

SCI-tive vs. CO₂ Incubator

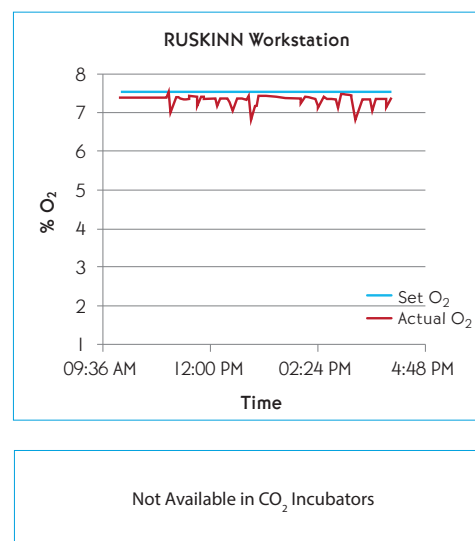
Temperature Stability



CO₂ Stability



O₂ Stability



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, hypoxia workstations and media conditioning solutions help improve research results by providing precisely controlled conditions for anoxic and low-oxygen studies.

To learn how Baker Ruskinn products can benefit your research, visit www.bakerruskinn.com.

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