what is a green lab anyway?
learning objectives

• To learn the various ways Green Lab certifications have been used to drive behavior change.

• To understand how organizations and labs use certifications to affect institutional change.

• To learn about a new certification tool that was developed to make certifying labs easier.
What is a Green Lab?
operations/scientists
sustainability/conservation
• clear standards with reproducible results
• guidelines for laboratory operations and procurement
• incentive
• reduce the environmental impact of labs
Green Lab Certification Program
how should a lab be certified?

in-depth interviews

online assessments
creating a green lab certification program

combination of online assessment and in-depth interviews
green lab certification process

complete assessment
Creating Sustainable Labs

My Green Lab is building a culture of sustainability through science.

Learn More
is equipment turned off?

are outlet timers in use?

is equipment right-sized?

are signs posted?
are lights turned off?

have mercury bulbs been eliminated?

are light switches marked?
are ULTs chilled up?

is ENERGY STAR preferred?

does the lab participate in the Freezer Challenge?

are freezers maintained?
are sashes closed?

are solvents being evaporated in hoods?
are faucets turned off?

are aerators installed?

is single-pass cooling eliminated?
are surplus sales utilized?

is there a lab inventory?
does the lab recycle?

does the lab use take-back programs?
are purchases consolidated? does the lab share resources?
is hazardous waste properly separated?

are less-hazardous materials used when possible?
are the 12 Principles of Green Chemistry posted and discussed?

does the lab follow the 12 Principles?
does the lab use alternative modes of transportation?

does the lab use video conferencing?
does the lab have a leave no trace policy? are reusable containers used?
does the lab have a Green Lab champion?

are conservation issues discussed in lab meetings?
so... how is this new?
Which of the following strategies for energy conservation do you use in your lab? (please check all that apply)

- ✔️ We have posted green lab procedures including stickers for fume hoods, turning off lights, etc.
- ☐ We have labeled instruments with a start-up/shut-down procedure
- ✔️ We have checked for and are aware of energy saving modes on all pieces of equipment
- ☐ We turn off chilled centrifuges, ovens, heating blocks and other equipment when not in use
- ✔️ We have made durable signs about turning equipment off
- ☐ We have power strips that are easily accessible and in use
- ✔️ We do not use screen savers - all of our computer monitors go into power-saving mode
- ✔️ We only use LCD flat screens, no CRT computer monitors
- ☐ We measure the power consumption of our equipment and we are aware of how to save energy
We use and maintain outlet timers to avoid keeping equipment on all night.

- Always
- Frequently
- Never
- I don’t know
- Not Applicable
We have posted green lab procedures including stickers for fume hoods, turning off lights, etc.

Posted green lab procedures make it clear to everyone how to follow best practices in the lab. For example, fume hood stickers serve as reminders to shut the sash when the fume hood is not in use. In the event of an explosion, a closed sash will prevent chemicals and other materials from entering into the lab. In addition, certain types of fume hoods, called variable air volume hoods, will consume less energy when the sash is closed.

Fume hoods are just one example of how posting green lab procedures can facilitate adherence to best practices.

For more information about how fume hood sash stickers can save energy, please click here.
For more information about how turning off the lights can save energy, please click here.
green lab certification

complete assessment → results presentation/interview
Which of the following strategies for energy conservation do you use in your lab? (please check all that apply)

☐ We have posted green lab procedures including stickers for fume hoods

☐ We have labeled instruments with a start-up/shut-down procedure

☐ We have checked for and are aware of energy saving modes on all pieces of equipment

☐ We turn off chilled centrifuges, ovens, heating blocks and other equipment

☐ We have made durable signs about turning equipment off

☐ We have power strips that are easily accessible and in use

☐ We do not use screen savers - all of our computer monitors go into pow

☐ We only use LCD flat screens, no CRT computer monitors

☐ We measure the power consumption of our equipment and we are aware

☐ Add option
Green Lab Assessment

Thanks for taking the survey!

<table>
<thead>
<tr>
<th>Total points earned</th>
<th>Your score</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.5795 /108</td>
<td>54%</td>
</tr>
<tr>
<td>Average: 66%</td>
<td></td>
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</tbody>
</table>

|                        |            |            |
|------------------------|------------|
| Energy                 | 49%        | Cold Storage | 47%  |
| Fume Hoods/TC Hoods    | 90%        | Water        | 86%  |
Which of the following strategies for energy conservation do you use in your lab? (please check all that apply)

Your answer

- **We have posted green lab procedures including stickers for fume hoods, turning off lights, etc.** (1 pt)
  
  Lab: 24%  
  UCSD: 52%  
  National: 57%

We have labeled instruments with a start-up/shut-down procedure (1 pt)

Lab: 23%  
UCSD: 51%  
National: 55%

- **We have checked for and are aware of energy saving modes on all pieces of equipment** (1 pt)

Lab: 25%  
UCSD: 50.5%  
National: 52%

We turn off chilled centrifuges, ovens, heating blocks and other equipment when not in use (1 pt)

Lab: 20%  
UCSD: 49.25%  
National: 48%

- **We have made durable signs about turning equipment off** (1 pt)

Lab: 19.5%  
UCSD: 50%  
National: 50%

We have power strips that are easily accessible and in use (1 pt)

Lab: 23%  
UCSD: 48%  
National: 55.25%

- **We do not use screen savers - all of our computer monitors go into power-saving mode** (1 pt)

Lab: 24%  
UCSD: 54.5%  
National: 49.5%

- **We only use LCD flat screens, no CRT computer monitors** (1 pt)

Lab: 22.5%  
UCSD: 53%  
National: 58%

We measure the power consumption of our equipment and we are aware of how to save energy (1 pt)

Lab: 25%  
UCSD: 51%  
National: 56%
We use and maintain outlet timers to avoid keeping equipment on all night.

Your answer

<table>
<thead>
<tr>
<th>Option</th>
<th>Lab:</th>
<th>UCSD:</th>
<th>National:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always</td>
<td>27%</td>
<td>33%</td>
<td>40%</td>
</tr>
<tr>
<td>Frequently</td>
<td>33%</td>
<td>33%</td>
<td>40%</td>
</tr>
<tr>
<td>Never</td>
<td>20%</td>
<td>33%</td>
<td>17%</td>
</tr>
<tr>
<td>I don’t know</td>
<td>20%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
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</table>
green lab certification

complete assessment → results presentation/interview

certification ← recommendation implementation
# Green Lab Certification Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Percentage of Green Lab assessment actions implemented</th>
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<tbody>
<tr>
<td>Platinum</td>
<td>80% or more</td>
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<tr>
<td>Gold</td>
<td>70-79%</td>
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<tr>
<td>Silver</td>
<td>60-69%</td>
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<tr>
<td>Bronze</td>
<td>50-59%</td>
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<tr>
<td>Green / Certified</td>
<td>40-49%</td>
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</table>
Certificate of Achievement

The Green Labs Program proudly presents this certificate to

Stephan Lange Lab
Division of Cardiovascular Medicine
October 11, 2016

Vice Chancellor, Resource Management & Planning
why green lab certification?

- clear standards with reproducible results
- guidelines for laboratory operations and procurement
- incentivize labs
- reduce the environmental impact of labs
does a green lab have a reduced environmental impact?
yes!

reduced energy: 10,000 kWh/year
reduced water: 5,000 gallons/year
reduced waste: 500 pounds/year
estimated savings: $1,000/year
<table>
<thead>
<tr>
<th>Green Lab Assessment</th>
<th>Support</th>
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<tbody>
<tr>
<td>Electricity</td>
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<tr>
<td>Lighting</td>
<td></td>
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<tr>
<td>Cold Storage</td>
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</tr>
<tr>
<td>Fume Hoods</td>
<td></td>
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<tr>
<td>Water</td>
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<tr>
<td>Inventory Management</td>
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<td>Recycling</td>
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<td>Waste Reduction</td>
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<td>Hazardous Waste</td>
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<td>Green Chemistry</td>
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<td>Travel</td>
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<tr>
<td>Field Work</td>
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<tr>
<td>Community</td>
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Green Lab Assessment

- Electricity
- Lighting
- Cold Storage
- Fume Hoods
- Water
- Inventory Management
- Recycling
- Waste Reduction
- Hazardous Waste
- Green Chemistry
- Travel
- Field Work
- Community
thank you to our sponsors!
thank you to Rheaply!
Thank you!

allison@mygreenlab.org  860.680.3283