



**petshop**

# Product catalogue 2015

## Photobacterium phosphoreum

Sure, it's great to stay active during the day if you're into that 9 to 5 thing—but what some of us really crave is the nightlife. If you're a night owl with a taste for glitz and glam, then photobacterium phosphoreum (also known as vibrio phosphoreum) is the bioluminescent bacterium for you. Photobacterium phosphoreum keeps calm and cool during the day, but really shines at night. Bring it with you to your next party, take it out dancing in the dark, or treat it to an evening concert. No matter where you take this nocturnal pet, its stellar appearance is sure to steal the show.



**petshop**

## Care

Photobacterium phosphoreum needs a specific medium with calcium carbonate ( $\text{CaCO}_3$ ) and glycerol to grow. Check our list of mediums to figure out how to make this pet feel at home. And remember, because Photobacterium phosphoreum is one cool cat, it prefers low temperatures and won't be comfortable over  $25^\circ\text{C}$ .

## Human connection

At the moment, photobacteria don't have much to do with the human body. But let's think towards the future: what if we could grow photobacteria on our skin and glow in the dark?

## Spirulina

Hey there, Hester Healthfood and Victor Vegan. Want a hippie-dippie pet without a big carbon footprint? Peace-loving spirulina is perfect for the easygoing, eco-friendly owner. This edible cyanobacteria is well known in the health community for its impressive nutritional profile. And, because it contains the whole range of essential amino acids, it's a good way to reduce the consumption of animal-based protein. This spiral-shaped cyanobacteria has a beautiful, intense green color that makes for an attractive addition to any home. And it's low maintenance, too! Just provide it with access to sun and fresh air, and you'll have a happy, healthy pet.



**petshop**

## Care

Spirulina is a gentle creature that doesn't mix well with other, more aggressive pets. So, it grows in an alkaline medium that inhibits the growth of other microorganisms (check our medium list so you can make it feel at home). It's laid back nature means that it grows best at room temperature (with a minimum of 20°C and a maximum of around 35°C).

## Human connection

This edible cyanobacteria is good for your body because it contains the whole range of essential amino acids. Yum! Eat up!

## Mycelium

Yeah, yeah, yeah. Goldfish are fine, but we all know the best pets have fur. If you just don't get the appeal of bacteria, you might try something friendlier and fluffier—fungus! Mycelium (the long, threadlike "roots" of mushrooms) are the Golden Retrievers of the micropet world. These adorable eukaryotes are furry, cuddly, and don't require that much effort. Of course, a moderate amount of "exercise" is necessary to keep your mycelium happy. But if you're not a jogger, don't worry—most enjoy spreading out their cellular networks and exploring their home on their own. So, for someone that enjoys an evening curled up on the couch with a book and a furry friend, mycelium could be the pet for you.



**petshop**

## Care

Mycelium isn't fussy. It can grow in almost any substrate (from topsoil to coffee grounds) as long as it's kept in a wet environment and stays warm (maintains a temperature of around 25°C). On our medium list, you'll find a recipe to do make the perfect mycelium environment in a petri dish with malt agar.

## Human connection

The fruit of mycelium—mushrooms—are a delicious food that have been enjoyed by humans for generations. Just be careful to choose the non-poisonous varieties!

## Aspergillus niger

Hey, wild thing. Let's be real. Your teenage dreams involved motorcycles, black leather, and general rebellion. Your taste in pets includes one word—attitude. And lots of it. *Aspergillus niger* is a black fungus that goes where it wants and does what it wants (regardless of anyone else's rules). Have you ever wondered about those black spots on your onions? Or tomatoes? Or bread? Or—pretty much anything? Yeah, that's *Aspergillus niger* sticking it to the man and refusing to go home after curfew. If you've got a punk-rock heart, *Aspergillus niger* is the pet for you. But, beware! Once this rebel finds its way into your home, it's hard to live without it. Really.



petshop



## Care

*Aspergillus niger* might have a devil-may-care attitude, but it does need a non-specific medium with an optimum temperature between 25-30°C to grow. And remember, this pet isn't for the faint of heart. If you have other pets, be careful when you handle it. *Aspergillus niger* isn't friendly and improper handling could lead to fast contamination!

## Human connection

*Aspergillus niger* is a common food contaminant, but is less likely to cause human disease than some other *Aspergillus* species. This strain is also cultured for industrial food production purposes, and is sometimes used as a fermentation agent for certain varieties of alcohol.

## Kombucha

Are you an out-going and friendly extrovert who needs a constant companion to really make your day? Kombucha culture might be the pet for you. This pet never without a buddy—because it's not a single organism, but a symbiotic colony of bacteria and yeast (SCOBY). And it's useful! Kombucha has not only become a popular fermented drink over the years, but also produces a jelly-like cellulose structure that can be used for all sorts of things. And, of course, if you're always on the go, kombucha is the ideal pet for those who don't have a lot of time on their hands. This colony's pretty independent. Just feed it and it will never stop growing!



**petshop**

## Care

Kombucha is a low-maintenance pet. Just brew tea with lots of sugar, and allow the mixture to come to room temperature before adding the SCOBY. If you want to play with the texture and color of your SCOBY, try different tea and carbon sources.

## Human connection

Kombucha is a popular fermented drink in the health food community. But jelly-like cellulose it produces can also be used for bio-textiles, bio-paper, and even as experimental “living bandages.”

## Physarum polycephalum (Slime mold)

Are you driven? Resourceful? Love to explore nature? *Physarum polycephalum* (or, slime mold) could be for you. An amoeboid that typically inhabits in moist, dark forests, this pet is an outdoorsy go-getter that thrives on stimulation. The clever slime mold is also a skilled hunter with a voracious appetite. When searching for food, it spreads out in all directions until it senses something tasty—then it springs. This hunter's instinct also means that *Physarum polycephalum* is trainable. If you throw it an oat flake, it will catch it (eventually). But don't let this intelligent hotshot fool you. Slime molds also have a sensitive side, and may even change color and shape according to how they feel.



**petshop**

## Care

Slime molds need a wet surface to move around, darkness, and something to hunt (food). Start your pet off with some oat flakes and introduce other foods later to keep your pet interested. For the slime mold's environment, you can use agar without nutrients or something as simple as wet cardboard.

## Human connection

Slime molds are capable of basic "intelligent" decisions. Or at least, something that looks a lot like intelligence to us humans. These little pets remind us that even the smallest organisms aren't that different from us.

## DIY Microscope

Get closer to your pets

Feeling the distance between you and your new, tiny pet? Want to catch a closer glimpse of their microscopic majesty? No worries! We've got the perfect solution for you: our DIY, webcam microscope. With this microscope, you'll be able to see close-up images of your pet on your computer.

This will encourage bonding between you and your new found friend.



**petshop**

## How-to

Below, you'll find the URL to assemble the microscope and a schematic. If you don't quite get it, sign up for the Biohack Academy and learn with us!

<http://biohackacademy.github.io/biofactory/class/2-microscope/>

## Join us!

Biohack Academy is an education program from Waag Society Amsterdam. The course is fully open source and distributed through partner labs around the globe.

You can find more information at <http://waag.org/biohackacademy>

## Catch your pets in the wild!

Alright, cowboy. You're not into this whole, sanitized "pet shop" thing. Pre-packed pets? That's just too easy. You'd rather pull on your boots and go outside exploring to find the perfect micro-companion. For you, adventurous explorer, we've put together a kit to help you catch your own pets out in the wild.

Go out in search of the perfect patch of soil, the most inviting door knobs, or even your own laptop keyboard to harvest a sample of your future friends with the cotton swab included in the kit (moistening the tip of the swab will help). Once you've loaded your cotton swab with microorganisms, you then swab the prepared medium in your petri dish to transfer your pets to their new home.



**petshop**



To ensure that your new pets are not contaminated, you might want to seal your petri dish with parafilm after you've swabbed the medium with your sample. Store your container overnight in a warm area. Over the next few days, you'll be greeted by your new, wild pet.

## Care

When storing the petri dish, remember to flip it upside down to keep the condensation from dripping onto your culture. Depending on the medium and where you swab, you might get different types of pets, which means that care may vary. In general, storing the petri dish at slightly above room temperature will encourage growth.

## Human connection

Microorganisms are all around us—in the air we breathe, the water we drink, on our skin, and even inside our bodies. Everywhere you look, micro-pets are waiting for new homes.

# Makers



# DIY hardware instructions

Also available as a pdf from [waag.org/petshop](http://waag.org/petshop):

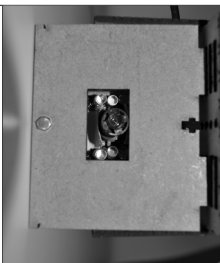
## HOW TO

### DIY Microscope

Feeling the distance between you and your new, tiny pet? Want to catch a closer glimpse of their microscopic majesty?

No worries! We've got the perfect solution for you: our DIY, webcam microscope. With this microscope, you'll be able to see close-up images of your pet on your computer.

On the next page, you'll find the URL to assemble the microscope and a schematic. If you don't quite get it, sign up for the Biohack Academy and learn with us!



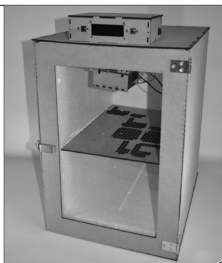
## HOW TO

### DIY incubator

Want to keep your new, tiny pet nice and warm? Want to make them comfortable in their new home?

No worries! We've got the perfect solution for you: our DIY incubator. With this incubator, you'll be able to make sure your pet stays at just the right temperature.

On the next page, you'll find the URL to assemble the incubator and a schematic. If you don't quite get it, sign up for the Biohack Academy and learn with us!



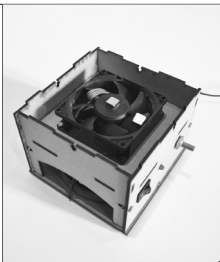
## HOW TO

### DIY magnetic stirrer

Want to shake things up with your pet? Want to mix them up them a nice, new home?

No worries! We've got the perfect solution for you: our DIY magnetic stirrer. With this magnetic stirrer, you'll be able to mix fluid samples—like media for growing bacteria!

On the next page, you'll find the URL to assemble the incubator and a schematic. If you don't quite get it, sign up for the Biohack Academy and learn with us!



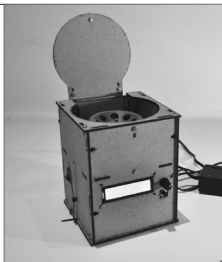
## HOW TO

### DIY centrifuge

Want to take your pet for a spin? Check out the DIY centrifuge!

**WARNING:** Centrifuges are dangerous machines. Always make sure you detach the rotor from the motor when testing the device. Attach something to the motor only after you are confident that you have the machine working properly.

On the next page, you'll find the URL to assemble the incubator and a schematic. If you don't quite get it, sign up for the Biohack Academy and learn with us!





# petshop items for sale



## Photobacterium phosphoreum

Photobacterium phosphoreum (also known as vibrio phosphoreum) is a bioluminescent bacterium that really shines at night. No matter where you take this nocturnal pet, its stellar appearance is sure to steal the show.

What can you do with it?

At the moment, photobacteria don't have much to do with the human body. But let's think towards the future: what if we could grow photobacteria on our skin and glow in the dark?



## Spirulina

Spirulina is a blue-green, spiral-shaped cyanobacterium that has a beautiful, intense green color. This peace-loving pet is perfect for the easygoing, eco-friendly owner.

What can you do with it?

This edible cyanobacteria is good for your body because it contains the whole range of essential amino acids. Yum! Eat up!



## Aspergillus niger

Aspergillus niger is a black fungus that often contaminates food (black spots on your citrus, anyone?). This fungus goes where it wants and does what it wants (regardless of anyone else's rules).

What can you do with it?

Aspergillus niger is a common food contaminant, but it is also cultured for industrial food production purposes. It is also sometimes used as a fermentation agent for certain varieties of alcohol.



## Mycelium

Mycelium are the long, threadlike "roots" of mushrooms and the Golden Retrievers of the microcosm world. These adorable eukaryotes are furry, cuddly, and don't require that much effort.

What can you do with it?

The fruit of mycelium—mushrooms—are a delicious food that have been enjoyed by humans for generations. Just be careful to choose the non-poisonous varieties!



## Kombucha

Kombucha is a symbiotic colony of bacteria and yeast (SCOBY) that produces a jelly-like cellulose structure and fermented drink. This low-maintenance pet is perfect for the outgoing extrovert on the go!

What can you do with it?

Kombucha is a popular fermented drink in the health-food community. But jelly-like cellulose it produces can also be used for bio-textiles, bio-paper, and even as experimental "living bandages."



## Physarum polycephalum (Slime mold)

Physarum polycephalum (or, slime mold) is an amoeba that typically inhabits its moist, dark forests, this pet is an outdoorsy go-getter that thrives on stimulation. Slime molds also have a sensitive side, and may even change color and shape according to how they feel.

What can you do with it?

Slime molds are capable of basic "intelligent" decisions. Or at least, something that looks a lot like intelligence to us humans. These little pets remind us that even the smallest organisms aren't that different from us.

