

# GROWERTALKS

## GT in Brief

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### Glow-in-the-Dark Flowers Get USDA OK

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You're always asking, "What's new?" Well, is this new enough for you? Bioluminescent petunias, meaning petunias that glow in the dark. On their own, genetically, without paint or dyes or artificial means of any sort. Other than genetic modification, that is.

This novel introduction, which will be sold under the name "Firefly Petunias," is coming from the synthetic biology startup Light Bio of Ketchum, Idaho. Founded in 2019, Light Bio is a "pioneering synthetic biology startup focused on cultivating vibrant bioluminescent plants ... through the melding of proprietary technology and advanced genetic engineering."

Light Bio worked in collaboration with Ginkgo Bioworks, which describes itself as "the leading horizontal platform for cell programming."

In a nutshell and in plain English, Firefly Petunias get their glow from DNA that comes from various species of luminous mushrooms. Scientists have figured out how to genetically enhance the natural luminescence, or "glow," of the fungal genes by many orders of magnitude. These enhanced mushroom genes, when inserted into other plants, cause those plants to glow. The luminescence is self-sustaining through a metabolic synergy with the plant. This enables perpetual illumination without any external aid—in other words, you don't have to "charge" them with sunlight, like a watch face or something. Through testing, they've found that petunias provide the brightest bioluminescence, especially in the flower buds.

Hence Firefly Petunia, which will be launched in April. Light Bio is now taking orders for finished plants at [www.light.bio](http://www.light.bio). During the day, they look just like a regular white petunia, and require no special treatments or care. At night, they give off an "ethereal aura." Light Bio says they've got 50,000 plants available for purchase on their website and can be shipped to all 48 contiguous states in the U.S. Price? Just \$29 for a 4-in. pot.

You're probably asking, "Are these things legal? And safe?"

In the eyes of the United States Department of Agriculture they are. Last September, USDA determined that Light Bio's genetically engineered Firefly Petunia may be safely grown and bred in the United States.

“This creates an unparalleled opportunity for plant enthusiasts to enjoy the transformative experience of living light,” said Light Bio.

“This milestone—and the magical experience we are bringing to people across the country—has been decades in the making,” said Keith Wood, CEO of Light Bio. “As part of the scientific team that discovered the bioluminescence genes from fireflies, I helped create the first glowing plant in 1986, which has inspired scientists worldwide. In the 40-odd years since, we have discovered a new bioluminescence technology that now allows us to bring these delightful plants to consumers. We can’t wait to see their reactions and to discover the bright future ahead for this incredible technology.”

Firefly is just the beginning, they say. Working in collaboration with Ginkgo Bioworks, Light Bio anticipates that future plants will be at least 10-fold brighter. More plant varieties and more colors are also envisioned. And, they add in the press release, “In addition to the pure joy these plants bring, the underlying science also helps to elucidate the molecular physiology of plants. The teams believe that insights gained from this research will bring meaningful advancements across critical areas like food security and nutrition.” **GT**