



# Green Insight Japan

Going to the cutting edge of the times

## About us

Pursuit of excellence

Green Insight Japan, Inc., a University of Shizuoka-based company, commercializes intellectual property based on plant science as BtoB to improve the quality of life, and serves to educate and entertain customers on the subject of "Japanology" in foreign languages.

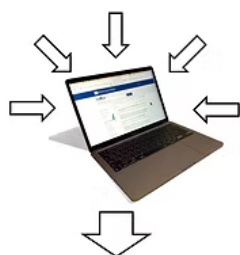


## Consulting

### Consulting Package: Easiest Plant Bio

#### Business contents

Leveraging our experience and networks, we will support the commercialization of any new technologies using plants and microorganisms from original perspectives, starting with a research survey. Specifically, we will prepare research reports, formulate R&D plans, introduce business partners, and advise on patenting.



Make up research reports  
▼  
Formulate R&D plans  
▼  
Introduce business partners  
▼  
Advise patenting

Consultant: Introductory pages (Columns, Depicted research history, Depicted network history, CV)

Contract fee: 500,000 yen (approx. US\$3,000) or more

Contact: [Kobayashi@ginsight-jpn.com](mailto:Kobayashi@ginsight-jpn.com)



# Projects

## Original approach

The rising costs of medical care in a progressively aging society, the progression of the heat-island phenomenon with global warming, and the proceeding deficiency of foods and fuel, need to be sorted out in order to achieve sustainable development in our society. Plants may be useful for solving these problems in combination with patented technologies mentioned below.

### 1. Commercialization of intellectual property: Utilization of 12 patent applications

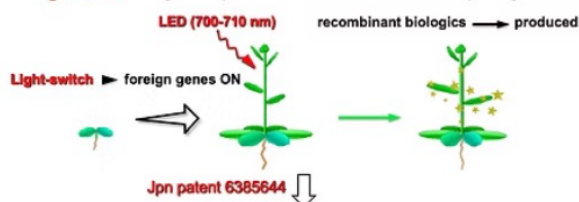
Production of valuable molecules such as biologics and cosmetic components by application of the "light-switch" method to plants (Columns 5, 26)

As published in *Proc. Natl. Acad. Sci. USA*, 2010

#### Production of Biologics by Plants ⇔ Cost Reduction, <1/40

Adalimumab, the trade name Humira, for the therapy of rheumatoid arthritis, was No. 1 in cumulative global sales at US\$20 B in 2022, being Japanese ¥3 T. Its patent expired in 2018.

"light-switch" for gene expression --- LED irradiation after plant growth



Success in producing 35 mg/kg of single-chain variable fragment (scFv) in tobacco leaves, being equivalent to US\$4 M or ¥600 M as Humira per 10<sup>4</sup> m<sup>2</sup> in fields  
→ Enhancing productivity by optimization of "light-switch"

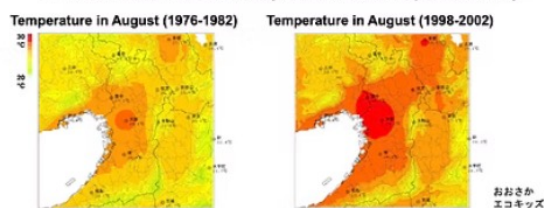
Creation of drought-tolerant grasses by genetic modification to green building roofs and road slope faces, using the application of the genes responsible for *salt tolerant callus (stc)* and *photoautotrophic salt tolerance (pst)* (Column 4)

As published in two papers in *PLOS ONE*, 2015 and in one paper in *Plant Cell*, 1999, respectively

#### Drought-Tolerant Grasses

⇔ Greening Building Roofs, Road Slope Faces, and Golf Courses

Problem: Heat island effect (Ex.: Osaka Metropolitan Area)



Application: Genetically-modified grasses out of regulation, USDA, 2017

Jpn patent 5871222

Greening of the world's heat islands

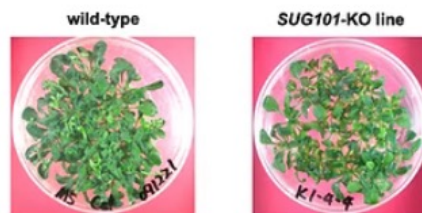


Creation of productivity-enhanced plants by genome editing\* of genes for *suppressed greening* (*sug*), contributing to efficient production of nutraceuticals and biofuel in plants (Columns 6, 7)

\*genome editing: Targeted alterations to DNA caused by gene editing are equivalent to that occurring in nature such as complete knockout (KO) of a gene, and foods made by KO can now be sold in Japan after reporting to the Ministry of Health, Labor and Welfare (MHLW).

### Knockout (KO) of Gene for Suppression of Photosynthesis

⇒ **Enhancement of Photosynthesis**



expression of photosynthesis genes  
1.3~4.3 times ↑

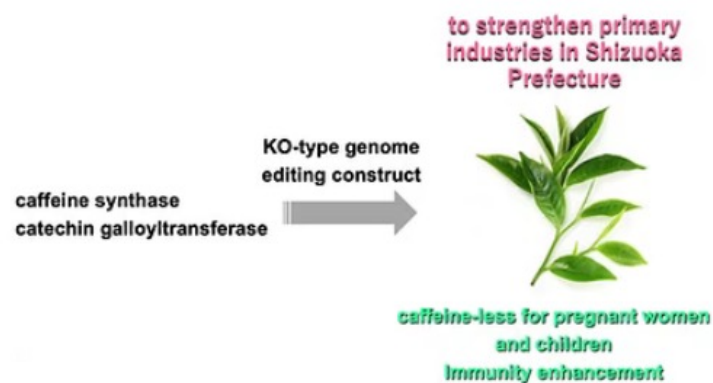
Method: Genome editing, outside of regulation for KO-type genetically-modified plants,  
MHLW, 2019

Jpn patent 5780506

↓  
**Broccoli, etc. enriched with sugar and nutraceuticals by  
enhancement of photosynthesis**



New varieties of tea plants created by gene knockout (KO) by genome editing, the safety technology  
(Columns 6, 7, 8)

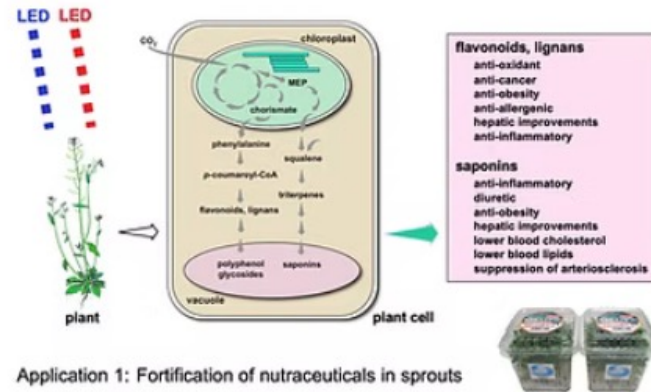


## Biofortification of pharmaceuticals and nutraceuticals in plants by light-emitted diode (LED) irradiation

(Columns 17, 30)

### LED Irradiation

#### ⇒ Fortification of Pharmaceuticals and Nutraceuticals in Plants



Application 1: Fortification of nutraceuticals in sprouts

Application 2: Fortification of pharmaceuticals in tomato fruits,  
 market value of US\$1,300 (140,000 JPY) / mg

## 2. Education for the public

Lectures and on-demand delivery of the subject "Japanology" as an interesting and unique way to introduce the geography, society, culture, science, and industry of Japan to foreign audiences (Columns 3, 9, SciStars-J)

### The entertainment of "Japanology"

The mysterious Far East, a world away from Western countries

→ The longest healthy life expectancy in the world

Topics in the lecture series "Japanology"

Presented at the University of Shizuoka, 2016 - 2020

1. Environment: Geography and Weather
2. Disaster Preparedness: What to Pack in Your Emergency Bag!
3. Demography: Population Decline and Aging
4. Linguistics: Japanese Dialects
5. Youth Issues: Japanese Societal Changes and Youth Exclusion
6. Economy: Japan's Core Competence and Future Prospects
7. What is Japanese Tea?
8. Medicinal Herbs: The University's Botanical Garden
9. The Longest Healthy Life Expectancy: Biotechnology



Topics: To be expanded on the basis of the above experience

Transmission: On demand via the Internet

Finance: Advertisement fees from the tourism and export companies













































# Scientifically Fascinating Stuff!

Text: Hirokazu Kobayashi

Illustration: AI-generated (ChatGPT4o)

Individual title \*: Related to our commercialization

- |    |   |  |    |   |  |
|----|---|--|----|---|--|
| 40 |    | Female emperors and maternal line emperors: ...    | 20 |    | Japanese culture: SDGs (Sustainable Develop...       |
| 39 |    | The recent Liberal Democratic Party president...   | 19 |    | A prosperous society fosters science!                |
| 38 |    | Shizuoka Prefecture, the epitome of Japan: M...    | 18 |    | The West is feedback oriented, vs. Japan is a p...   |
| 37 |    | The mystery of coevolution: Interactions betw...   | 17 |    | Plants tough to blue light: Becoming useful for...*  |
| 36 |    | Shimizu: Hometown of "Chibi Maruko"!               | 16 |    | Digitization trajectory: The state-of-the-art Ch...  |
| 35 |    | 50-year speed rate of increase: The trajectory ... | 15 |    | Multifocal lenses for cataracts: Made possible ...   |
| 34 |    | Human survival: Its biological scenario!           | 14 |    | Life with 3Cs!                                       |
| 33 |   | Road situation: Its legacy, action, and prospec... | 13 |   | Wear two hats in Japanese phrases, namely t...       |
| 32 |  | The charm of the Middle East: Climate change ...   | 12 |  | Reasons for Japan's recent rise in popularity?       |
| 31 |  | Uncovering the mechanisms of life: The "LET L...   | 11 |  | The COVID-19 pandemic has gone too far: Its s...     |
| 30 |  | The hidden molecular mechanism of tomato: ...*     | 10 |  | Japan's research ability: Is it bad to be ranked ... |
| 29 |  | Research misconduct: Why doesn't it end?           | 9  |  | Shizuoka: Japan's California!*                       |
| 28 |  | Jews around us: Their charm!                       | 8  |  | Preference for decaffeination: Modifying the tr...   |
| 27 |  | Research: Is it bad to be ranked second?*          | 7  |  | Destroying a gene: Increasing its related funct...   |
| 26 |  | How plants work: Distinguishing the sun's cha...*  | 6  |  | What is "genome editing"*                            |
| 25 |  | Suruga: The history and climate of the confron...  | 5  |  | Production by Plants: The ultimate option for l...*  |
| 24 |  | Mt. Fuji: The object of worship!                   | 4  |  | Non-edible genetically modified plants: Their ...*   |
| 23 |  | Sympathy for Thailand!                             | 3  |  | What are Japan's selling points? *                   |
| 22 |  | Life: Like a mayfly that lives one day!            | 2  |  | Scientific views of life and death!                  |
| 21 |  | One generation: Ten years grown over the pas...    | 1  |  | Improving the quality of life for the elderly!       |





## Science Stars Japan

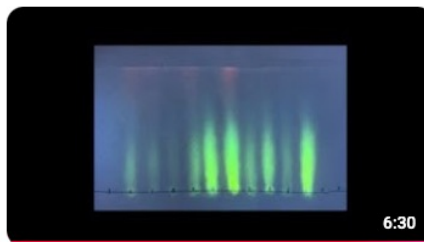
@ScienceStars - チャンネル登録者数 30人・28本の動画  
NPO法人・理科好きなお子さんを育む会「サイエンス・スターズ／Science Stars」

[チャンネルをカスタマイズ](#)

[動画を管理](#)



<https://www.youtube.com/@ScienceStars/videos>



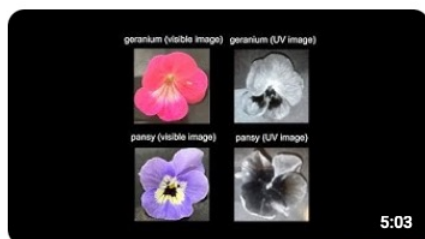
Science Stars Japan, No. 10, with English narration: Pill bugs' powwow

38 回視聴・5 か月前



Science Stars Japan, No. 5, with English narration: Are they red fireflies that glow in...

20 回視聴・5 か月前



Science Stars Japan, No. 14: Super Easy! Experience the World as Seen by Insects!

18 回視聴・2 週間前



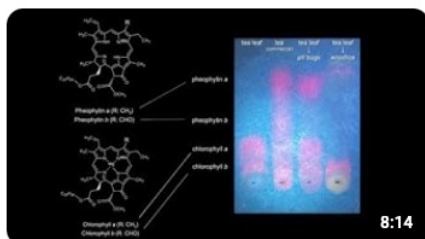
Science Stars Japan, No. 9, with English narration: Some Yokai, supernatural beings...

49 回視聴・4 か月前



Science Stars Japan, No. 4, with English narration: Who took my boiled egg yolk out?

9 回視聴・5 か月前



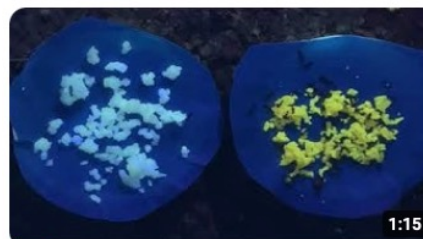
Science Stars Japan, No. 13: Pill Bugs and Woodlice: Come They Eat the Same Things...

47 回視聴・1 か月前



Science Stars Japan, No. 8, with English narration: Pill bugs came along, dancing to...

27 回視聴・5 か月前



Science Stars Japan, No. 3, with English narration: If you shine a black light on ants'...

7 回視聴・5 か月前



Science Stars Japan, No. 12: Pill Bugs' Powwow: Are Woodlice Our Companies?

158 回視聴・3 か月前



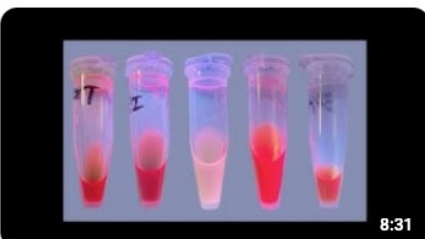
Science Stars Japan, No. 7, with English narration: Flowers at night

25 回視聴・5 か月前



Science Stars Japan, No. 2, with English narration: Do ants have food preferences?

16 回視聴・5 か月前



Science Stars Japan, No. 11: Ciao! This is Shiro Chao.

195 回視聴・4 か月前



Science Stars Japan, No. 6, with English narration: If you think it's a green turtle...

29 回視聴・5 か月前



Science Stars Japan, No. 1, with English narration: Are they fireflies that glow in the...

9 回視聴・5 か月前