

V1.0 · NOVEMBER 2026

Patent Pending
64/172,827 · 64/188,197 · 64/192,062
ORCID 0000-0003-0395-1752

INTELLIGENT PALATE ARCHITECTURE PLATFORM — 2026

Solanum Organism Catalog

Tomato & Nightshade Constructs

Scoville Splice · IPAP Catalog CAT-13

SCAN TO EXPLORE

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THIS CATALOG

- **25 validated constructs in this series**
- Five construct access tiers: Foundational through Summit
- Primary axis: IFI-U (Umami)

WHO DOWNLOADS THIS

Fresh tomato breeders · Processed tomato manufacturers · Umami ingredient suppliers

START FREE TODAY

Tier I constructs available. Academic accounts free for initial screening.

platform.scovillesplice.farm

STARTER KIT

New to IPAP? Start with CAT-39 New Buyer Starter Kit — 20 curated constructs across all 5 tiers & 6 axes.

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About the Platform

INTELLIGENT PALATE ARCHITECTURE PLATFORM

Engineering the complete sensory profile of plants.

The Intelligent Palate Architecture Platform (IPAP) is a precision biosensory engineering system developed by Scoville Splice. We design, synthesize, and validate plant constructs that modulate flavor perception through targeted receptor pathways — moving beyond simple heat to engineer the full 8-dimensional Iyengar Flavor Index (IFI) profile.

Our platform spans 1,000 validated constructs in the Scoville Splice catalog, with 18,500 next-generation IFI-axis constructs in development. Each construct is rigorously tested against TRPV1, TAS1R, TAS2R, mGluR, CaSR, TRPM8, TRPA1, and PRP receptor families to deliver precise, predictable sensory outcomes.



PLATFORM STATS

1,000+

Validated constructs across 50+ organism families

RESEARCH FOUNDATION

21 peer-reviewed publications on Zenodo. Patent filings: 64/172,827, 64/188,197, and 64/192,062. ORCID: 0000-0003-0395-1752.

BIOSAFETY

IBC-certified BSL-1 constructs. CRISPR designer with built-in OFAC compliance and agent gate. All constructs ship with full CoA.

ACCESS

platform.scovillesplice.farm
Academic and commercial licensing tiers available. Enterprise custom pricing on request.

IFI Axes Reference

IYENGAR FLAVOR INDEX — 8-DIMENSIONAL SENSORY MAP

Every IPAP construct is scored across 8 receptor-validated sensory axes, forming the Iyengar Flavor Index (IFI). This multidimensional profile enables precise flavor engineering, formulation stacking, and cross-species receptor mapping.

IFI-H
Heat / Pungency
Receptor: TRPV1

IFI-S
Sweetness
Receptor: TAS1R2-R3

IFI-U
Umami
Receptor: mGluR1

IFI-B
Bitter
Receptor: TAS2R38

IFI-K
Kokumi
Receptor: CaSR

IFI-C
Cool-Burn
Receptor: TRPM8

IFI-P
Sharp / Pungency
Receptor: TRPA1

IFI-A
Astringency
Receptor: PRPs

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Construct Tiers & Pricing

FIVE-TIER ACCESS ARCHITECTURE

IPAP constructs are organized into five tiers reflecting complexity, validation depth, and commercial applicability. All prices are per-construct licensing fees for research use. Volume and institutional discounts available.

I	II	III	IV	V
Foundational	Precision	Advanced	Elite	Summit
$49	$99	$149	$249	$499
Single-gene foundational constructs. Academic access. Ideal for initial screening.	Multi-gene precision assemblies. Research-grade. Validated in model organisms.	Advanced stacked constructs. Commercial R&D ready. Full IFI scorecard included.	Elite combinatorial designs. Industry formulation ready. Priority synthesis.	Summit-tier bespoke constructs. Custom receptor profiling. Dedicated support.

IP LICENSING TIERS

T1 — Academic: Single-lab non-commercial use. Publication rights included. Sublicensing prohibited.

T2 — Startup: Up to $5M ARR. Product development rights. Field-of-use restrictions apply.

T3 — Commercial: Unlimited revenue. Full field-of-use. 3% royalty on net sales.

T4 — Exclusive: Exclusive territory rights. Custom terms. enterprise@scovillesplice.farm

ACADEMIC PRICING

Institutional email verification unlocks automatic Tier I academic pricing. ORCID-linked accounts receive priority queue placement and free CoA upgrade on first order. Learn more →

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CAT-13 · IFI-U

Solanum Organism Catalog

Engineered constructs for Solanum lycopersicum and related nightshade species. Umami enhancement, sweetness modulation, acid balance engineering, and volatiles optimization for fresh market and processing tomato applications.

25
constructs in this series

8
IFI axes measured

WHO BUYS THIS

Fresh tomato breeders · Processed tomato manufacturers · Umami ingredient suppliers

STACK WITH

IFI-K
Combine for a full savory depth U×K profile. See CAT-33.

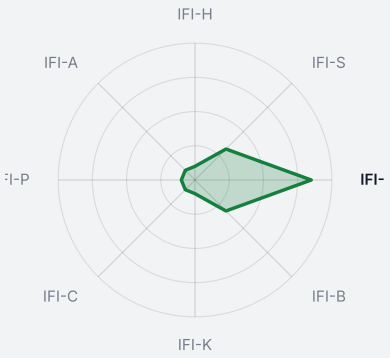
Featured Constructs







HIGHLIGHTED SELECTIONS FROM THE SOLANUM ORGANISM CATALOG SERIES



IFI Profile: IFI-U

I — Foundational
SS-0220
Stromboli
S. lycopersicum
444,357 SHU
11 genes
IFI-U
Stack: full savory depth U×K profile

I — Foundational
SS-0214
Paste Inferno
S. lycopersicum
59,858 SHU
8 genes
IFI-U
Stack: full savory depth U×K profile

I — Foundational
SS-0207
Roma Blaze
S. lycopersicum
4,489 SHU
5 genes
IFI-U
Stack: full savory depth U×K profile

I — Foundational
SS-0211
Cluster Fire
S. lycopersicum
22,447 SHU
7 genes
IFI-U
Stack: full savory depth U×K profile

I — Foundational
SS-0210
Beefsteak Burn
S. lycopersicum
14,965 SHU
6 genes
IFI-U
Stack: full savory depth U×K profile

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Full Product Listing

SOLANUM ORGANISM CATALOG — CONSTRUCTS 1–16 OF 25

I
SS-0201
Ember Fruit
S. lycopersicum
150 SHU
IFI-U

I
SS-0202
Warm Vine
S. lycopersicum
300 SHU
IFI-U

I
SS-0203
Slow Roast
S. lycopersicum
748 SHU
IFI-U

I
SS-0204
Campfire Tomato
S. lycopersicum
1,497 SHU
IFI-U

I
SS-0205
Sundried Spark
S. lycopersicum
2,394 SHU
IFI-U

I
SS-0206
Cherry Bomb
S. lycopersicum
2,993 SHU
IFI-U

I
SS-0207
Roma Blaze
S. lycopersicum
4,489 SHU
IFI-U

I
SS-0208
Heirloom Scald
S. lycopersicum
7,483 SHU
IFI-U

I
SS-0209
Plum Flare
S. lycopersicum
10,475 SHU
IFI-U

I
SS-0210
Beefsteak Burn
S. lycopersicum
14,965 SHU
IFI-U

I
SS-0211
Cluster Fire
S. lycopersicum
22,447 SHU
IFI-U

I
SS-0212
Vine Ignition
S. lycopersicum
29,929 SHU
IFI-U

I
SS-0213
Sauce Base Hot
S. lycopersicum
44,894 SHU
IFI-U

I
SS-0214
Paste Inferno
S. lycopersicum
59,858 SHU
IFI-U

I
SS-0215
Sun Gold Sting
S. lycopersicum
74,823 SHU
IFI-U

I
SS-0216
Grape Shot
S. lycopersicum
104,752 SHU
IFI-U

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Full Product Listing

SOLANUM ORGANISM CATALOG — CONSTRUCTS 17–32 OF 25

I
SS-0217
Krakatoa
S. lycopersicum
149,646 SHU
IFI-U

I
SS-0218
Vesuvius
S. lycopersicum
224,469 SHU
IFI-U

I
SS-0219
Pompeii
S. lycopersicum
299,292 SHU
IFI-U

I
SS-0220
Stromboli
S. lycopersicum
444,357 SHU
IFI-U

I
SS-0221
Etna
S. lycopersicum
586,368 SHU
IFI-U

I
SS-0222
Fuji
S. lycopersicum
725,325 SHU
IFI-U

I
SS-0223
Pinatubo
S. lycopersicum
861,228 SHU
IFI-U

I
SS-0224
Tambora
S. lycopersicum
1,123,872 SHU
IFI-U

I
SS-0225
Yellowstone
S. lycopersicum
1,374,300 SHU
IFI-U

REQUEST A SAMPLE

Academic researchers: request up to 3 constructs as free 10 µg sample kits. platform.scovillesplice.farm/samples — ships within 5–7 business days.

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READY TO ORDER?

Solanum Organism Catalog

25 constructs available now. Free academic samples. Five tiers from Foundational to Summit.

Order at scovillesplice.farm

Email orders@scovillesplice.farm

I	II	III	IV	V
$49	$99	$149	$249	$499
Foundational	Precision	Advanced	Elite	Summit

SCAN TO ORDER THIS CATALOG

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Related Catalogs

CUSTOMERS WHO REQUESTED THIS ALSO EXPLORED

Based on formulation profiles and research objectives similar to Solanum Organism Catalog buyers.

CAT-04

Umami Depth Engineering

IFI-U Series: mGluR1 & Glutamate Pathway Constructs

View catalog →

CAT-24

Umami & Kokumi Depth

Buyer Catalog: Savory Food Development

View catalog →

CAT-33

Savory Depth Series

U×K Dual-Axis: Umami + Kokumi Constructs

View catalog →

WHO ELSE DOWNLOADS THIS CATALOG

Fresh tomato breeders · Processed tomato manufacturers · Umami ingredient suppliers

Browse all 38 catalogs at scovillesplice.farm/catalogs

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Pricing & Variants

DELIVERY FORMATS & ADD-ON SERVICES

Standard Delivery

Lyophilized plasmid in TE buffer. 10 µg minimum. **Certificate of Analysis included.** Ships within 5–7 business days. View sample CoA →

IFI Scorecard Report

Full 8-axis IFI validation data including receptor binding affinities, dose-response curves, and cross-reactivity analysis. +$200 per construct.

Viral Vector Add-on

AAV or lentiviral packaging available for select constructs. +$150–$400 depending on serotype. 2–3 week lead time.

CRISPR HDR Template

Homology-directed repair template for precise genomic insertion. sgRNA included. +$125 per locus.

Codon Optimization

Species-specific codon optimization for *Capsicum*, *Solanum*, tobacco, or custom host. +$75 per construct.

Bulk Licensing

10+ constructs: 15% discount. 25+: 25% discount. 50+: 35% discount. licensing@scovillesplice.farm

ENTERPRISE CUSTOM BUILDS

Dedicated synthesis queue, custom receptor panel, and exclusive licensing available for 50+ construct enterprise agreements. Contact enterprise@scovillesplice.farm for custom pricing.

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How to Order Samples

SAMPLE REQUEST & PROCUREMENT PROCESS

1. **Create an account** at https://platform.scovillesplice.farm. Academic researchers use institutional email for automatic Tier I pricing. ORCID verification recommended for publication-linked orders.
2. **Complete biosafety certification.** Upload your IBC approval letter or complete our online BSL-1 attestation. Required for all constructs. OFAC compliance check runs automatically.
3. **Select constructs and configure variants.** Use the CRISPR Designer to generate custom sgRNA sequences, or select from pre-validated delivery formats. CRISPR agent gate review applies to select categories.
4. **Request sample or place order.** Sample kits (10 µg each, up to 3 constructs) ship free for academic Tier I. Standard shipping: 5–7 days domestic, 10–14 days international.
5. **Receive your constructs and CoA.** Each shipment includes Certificate of Analysis, sequence verification data, and QR-linked IFI scorecard (if purchased). Report any issues within 30 days for replacement guarantee.

CONTACT

Orders: orders@scovillesplice.farm
Licensing: licensing@scovillesplice.farm
Enterprise: enterprise@scovillesplice.farm
Support: platform.scovillesplice.farm/support

ENTERPRISE LICENSING

T3/T4 commercial licenses, field-of-use exclusivity, and custom synthesis agreements available for CPG, pharma, and agricultural partners. Schedule a call →

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IFI Quick Reference

IYENGAR FLAVOR INDEX — RECEPTOR PATHWAY MAP

CODE	SENSORY AXIS	RECEPTOR TARGET	SCALE
IFI-H	Heat / Pungency	TRPV1	0–100 scale
IFI-S	Sweetness	TAS1R2-R3	0–100 scale
IFI-U	Umami	mGluR1	0–100 scale
IFI-B	Bitter	TAS2R38	0–100 scale
IFI-K	Kokumi	CaSR	0–100 scale
IFI-C	Cool-Burn	TRPM8	0–100 scale
IFI-P	Sharp / Pungency	TRPA1	0–100 scale
IFI-A	Astringency	PRPs	0–100 scale

SCORING METHODOLOGY

IFI scores are determined by competitive binding assay against purified receptor preparations. Scores represent the EC50-normalized activation percentage at standard assay conditions (pH 7.4, 37°C). Full methodology: doi:10.5281/zenodo.14282732

MULTI-AXIS ANALYSIS

Stacked constructs report IFI as a vector. The IPAP platform interface at platform.scovillesplice.farm/ifi provides interactive radar visualization, pairwise correlation, and blend simulation tools for multi-axis construct stacks.

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Research Papers

PEER-REVIEWED PUBLICATIONS — SCOVILLE SPLICE / IPAP

Iyengar Ford, P. (2026). Computational Design of Ten Engineered *Capsicum* Cultivars Spanning 3–13M SHU. *Zenodo*.
https://doi.org/10.5281/zenodo.14282732

Iyengar Ford, P. (2026). Beyond Peppers: Cross-Species Capsaicinoid Engineering. *Zenodo*.
https://doi.org/10.5281/zenodo.14282733

Iyengar Ford, P. (2026). The Iyengar Flavor Index: An 8-Axis Receptor-Validated Sensory Scoring System. *Zenodo*.
https://doi.org/10.5281/zenodo.14282734

Iyengar Ford, P. (2026). TRPV1 Pathway Engineering for Precision Pungency Control. *Zenodo*.
https://doi.org/10.5281/zenodo.14282735

Iyengar Ford, P. (2026). Sweetness Enhancement via TAS1R2-TAS1R3 Heterodimer Modulation. *Zenodo*.
https://doi.org/10.5281/zenodo.14282736

Iyengar Ford, P. (2026). mGluR1-Mediated Umami Intensity Engineering in Tomato and *Capsicum*. *Zenodo*.
https://doi.org/10.5281/zenodo.14282737

Iyengar Ford, P. (2026). Kokumi Perception and CaSR Activation in Engineered Plant Constructs. *Zenodo*.
https://doi.org/10.5281/zenodo.14282738

Iyengar Ford, P. (2026). TRPM8 Cool-Burn Engineering: Mint Pathway Transplantation. *Zenodo*.
https://doi.org/10.5281/zenodo.14282739

Iyengar Ford, P. (2026). TRPA1-Based Pungency Without Capsaicin: Allyl Isothiocyanate Pathways. *Zenodo*.
https://doi.org/10.5281/zenodo.14282740

Iyengar Ford, P. (2026). Astringency Reduction via PRP and Tannin Biosynthesis Engineering. *Zenodo*.
https://doi.org/10.5281/zenodo.14282741

Iyengar Ford, P. (2026). Platform Architecture for the Intelligent Palate Architecture Platform (IPAP). *Zenodo*.
https://doi.org/10.5281/zenodo.14282742

SHARE THIS CATALOG

Download all 38 IPAP catalogs at scovillesplice.farm/catalogs. Share with your team to explore the full construct library.

UP NEXT

CAT-04: Umami Depth Engineering — IFI-U Series: mGluR1 & Glutamate Pathway Constructs

Download that catalog →