



**PTP03**

**TC Gel**

**Proprietary Blend of Agar and GESOLGEL™ MTC**

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## **Introduction**

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Caisson Labs, Inc, is excited to announce the release of our newest Tissue Culture (TC) Gel, a proprietary blend of agar and GESOLGEL™ MTC. This blend is specially designed to combine the low ion concentration requirements of agar with the added clarity and elasticity of GESOLGEL™ MTC to create a growth matrix suitable for a wide variety of plant tissue culture media. It produces a gel that is somewhat translucent, colorless to slightly off-white and moderately firm. With a working concentration of 4 – 6 g/L, users are able to easily achieve their preferred level of firmness. This TC Gel is available in a wide variety of sizes.

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## **Comparative Testing**

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We understand that regular customers of Caisson Labs, Inc, may be interested in a comparison between our new product (PTP03) and our previous proprietary blend of agar and Gelzan™ (PTP02). We have designed PTP03 to be a direct replacement for PTP02. Customers can expect comparable performance between the two, and those growing woody plants may experience even better performance with the new formulation. The procedure for and results of our comparative testing are outlined below.

Eight plant cell culture vessels were prepared using Murashige & Skoog Basal Salts with Macronutrients, Micronutrients, Vitamins and Glycine (MSP09) with 25 g/L sucrose (S011); 2 mL/L of a plant conservation product; and 6 g/L of either PTP03 or PTP02. Both gelling agents appear white to off-white in their powder form. The solutions in the vessels were comparable in appearance.

The vessels were autoclaved at 121°C for 21 minutes, then allowed to cool in a laminar flow hood. Both products gelled at about the same rate, resulting in colorless to off-white, somewhat translucent gel in each vessel.

Plant cell culture was performed using hosta (*Hosta spp.*), potato (*Solanum tuberosum*), grape (*Vitis spp.*), and wandering Jew (*Tradescantia zebrina*) in a laminar flow hood. No differences in consistency, firmness, or texture were observed between PTP03 and PTP02 during this procedure.

The vessels were then wrapped with Vessel Wrap (VWS01) for additional contamination prevention and placed side by side under grow lights at ambient temperature. The plants were allowed to grow for several weeks.

After one week, those plants cultured in PTP03 appeared to be growing slightly more slowly than those cultured in PTP02 for all plants. When the vessels containing hostas were held up to a backlight, the roots were visible through the gelling agent in both PTP03 and PTP02. Both vessels containing wandering Jew cuttings had a tan



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cast to their gel due to the phenolics released by the cuttings. By the third week, PTP03 had mostly closed the gap in growth. For grape in particular, PTP03 produced taller, stronger shoots with larger leaves than did PTP02. These differences are observable in the comparison photos located in the next section. Overall, these products are very comparable.

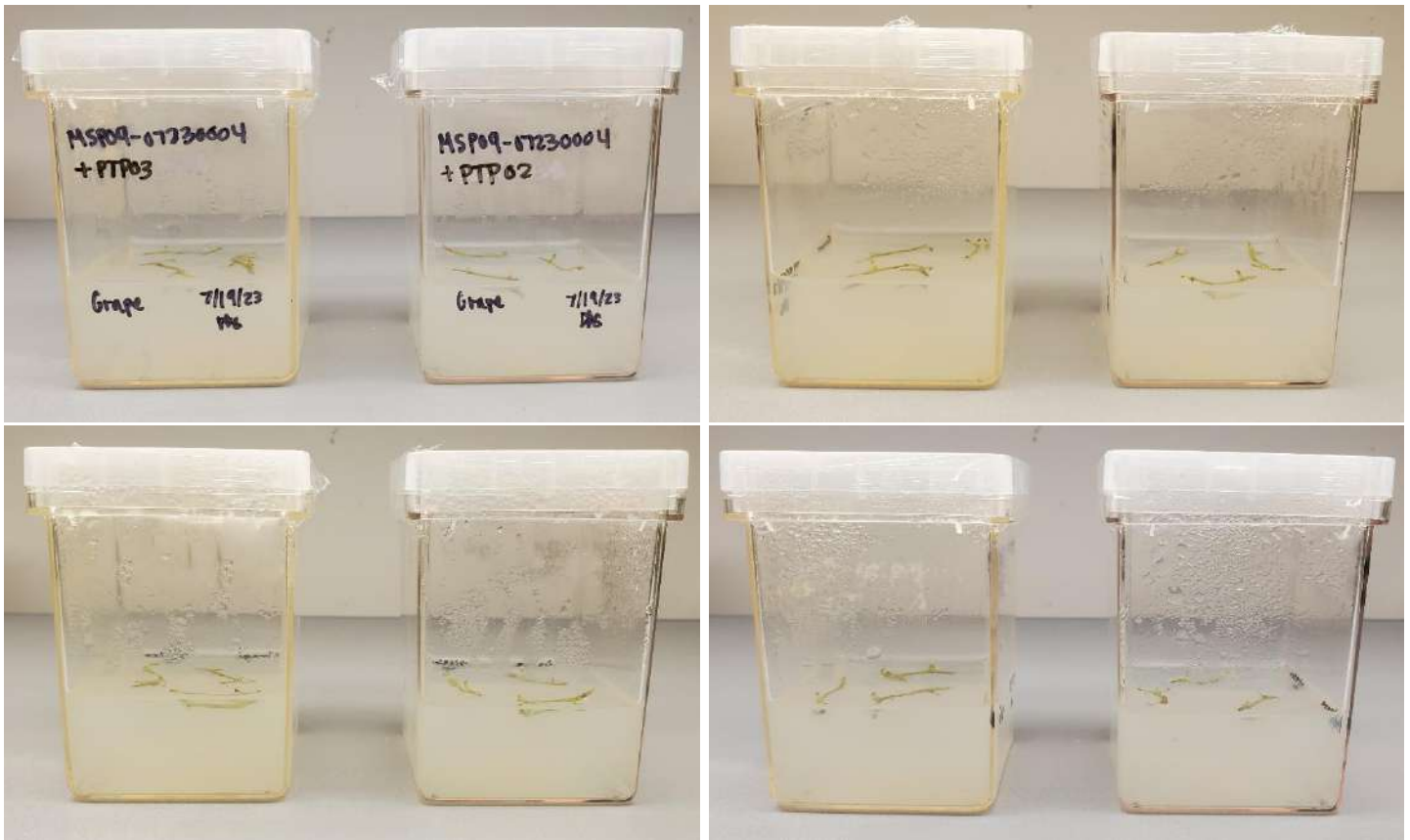
## PTP03

### Comparison Photos

The following photos compare the plant growth between PTP03 and PTP02 at one and four weeks after plant cell culture. In each photo, the vessel on the left showcases PTP03, while the vessel on the right displays PTP02. Photos of one week of growth best demonstrate the differences in appearance between the products.

### Grape

Both vessels were cultured with three cuttings of two to three nodes each from the same mother grape.



**Figure 1. Grape cuttings after one week of growth.** One new shoot was beginning to emerge from one cutting in PTP02 at this point; no other growth was observed.

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**Figure 2. Grape cuttings after four weeks of growth.** As shown, cuttings in PTP03 grew taller, thicker shoots with larger leaves than those in PTP02.

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### Hosta

These vessels were cultured by dividing one mother hosta. The half placed in PTP03 included two nodes, while that placed in PTP02 included four nodes. With this consideration, the observed growth in each vessel is proportionate and competitive.



**Figure 3. Hostas after one week of growth. Both show comparable leaf growth.**

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**Figure 4. Hostas after four weeks of growth. The hosta in PTP02 has more leaf growth, likely due to the higher number of nodes.**

PTP03

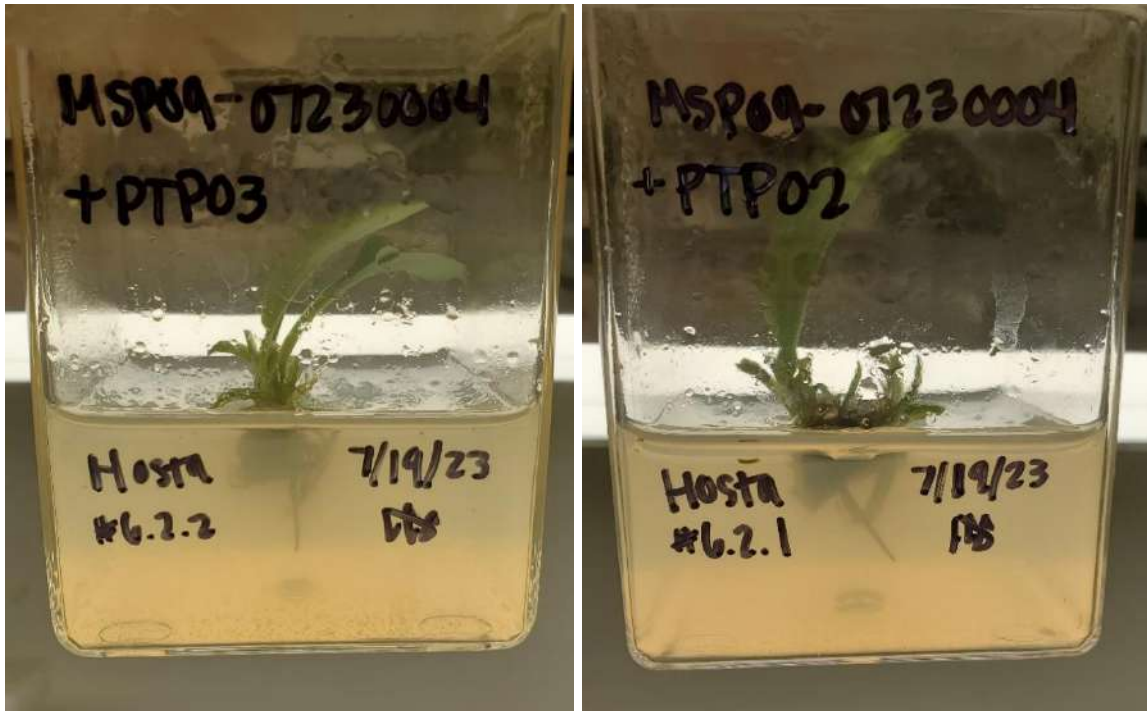


Figure 5. Hosta roots after one week of growth in PTP03 (left) and PTP02 (right). Both show comparable root growth.

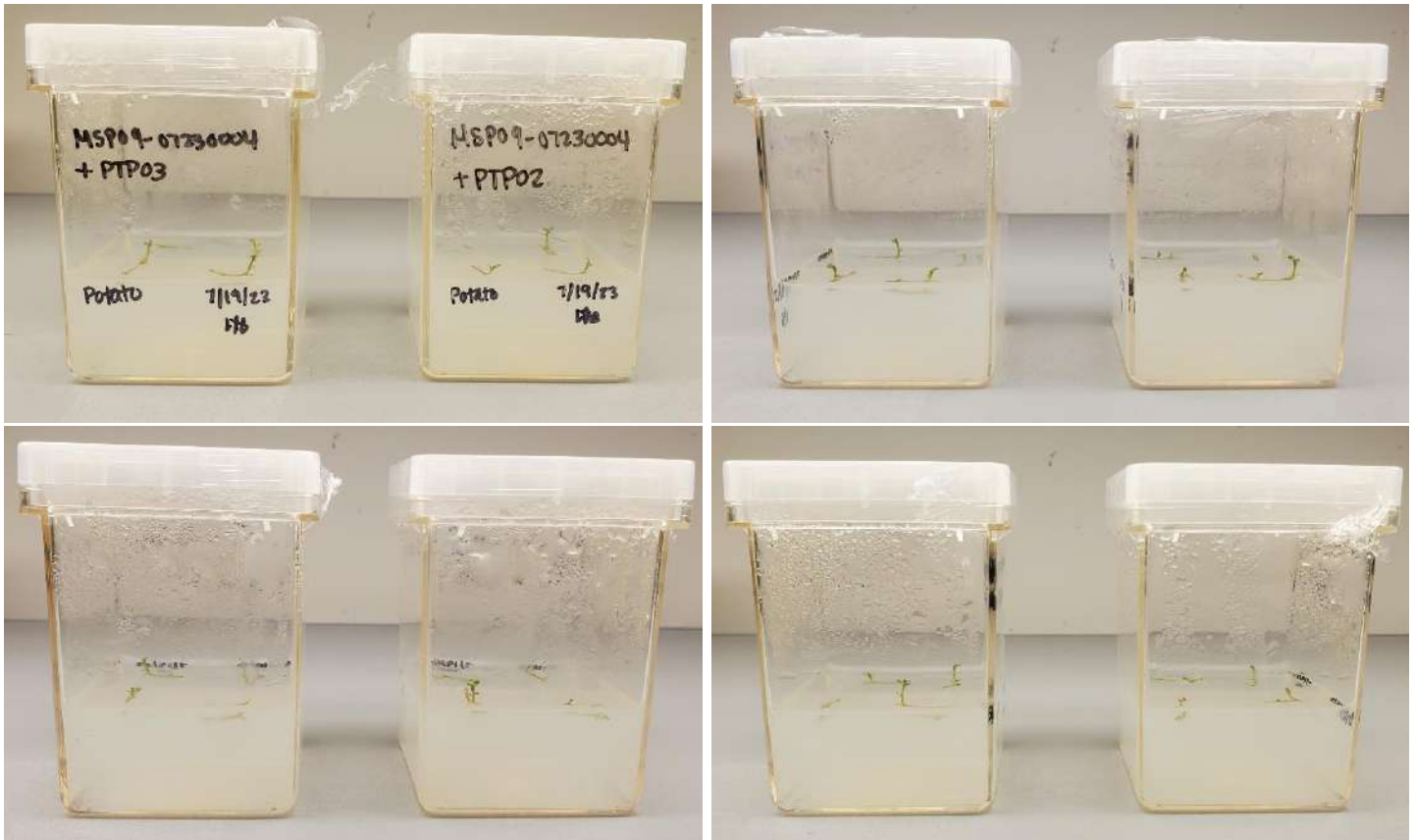


Figure 6. Hosta roots after four weeks of growth in PTP03 (left) and PTP02 (right). The hosta in PTP02 shows more significant root growth, likely due to the higher number of nodes the roots must support.

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### Potato

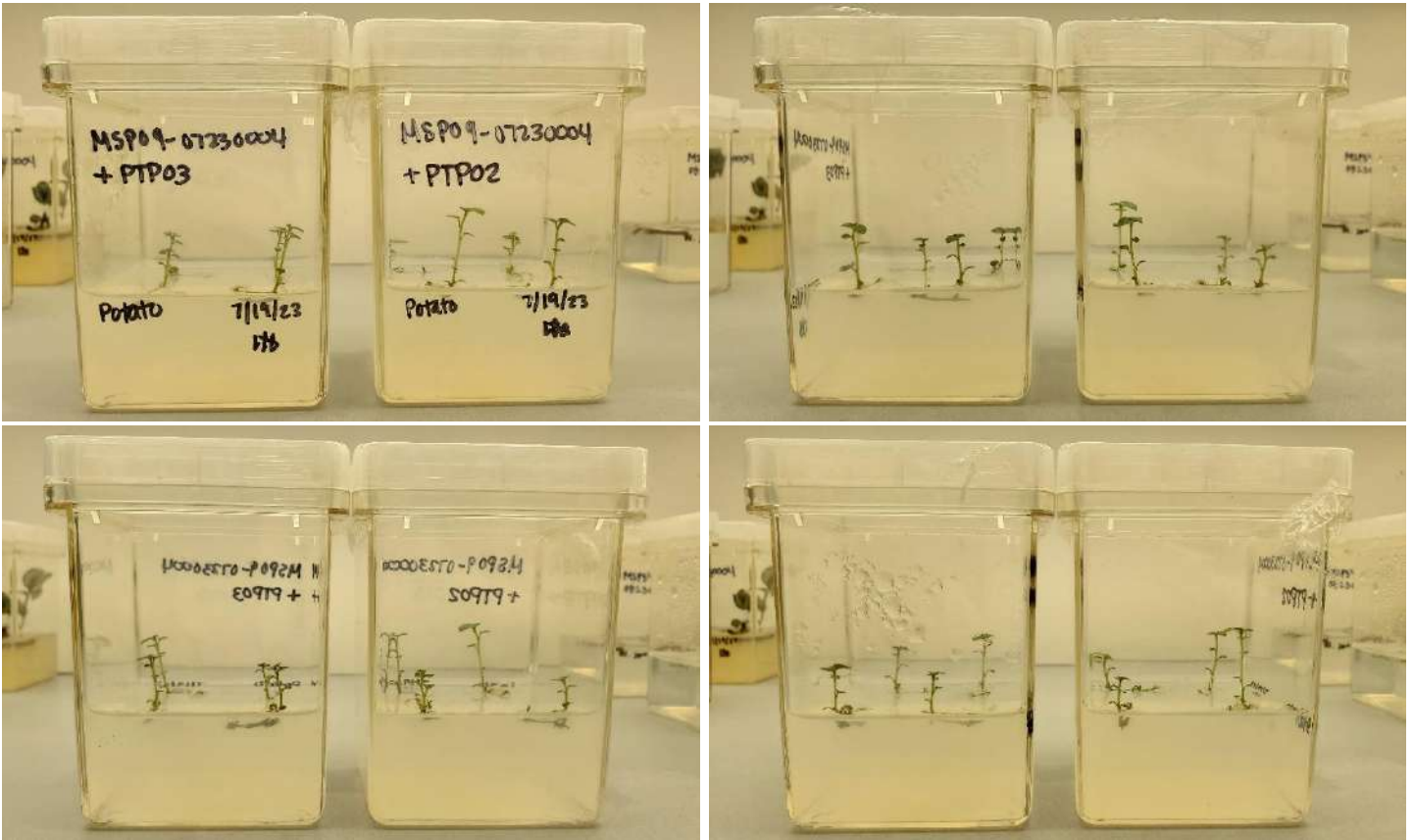
Both vessels were cultured with four cuttings of two to three nodes each from the same mother potato plant.



**Figure 7. Potato cuttings after one week of growth.** One new shoot developed on each of three cuttings in PTP03 and three cuttings in PTP02. All shoots were approximately the same height with about the same amount of leaf growth.



## PTP03

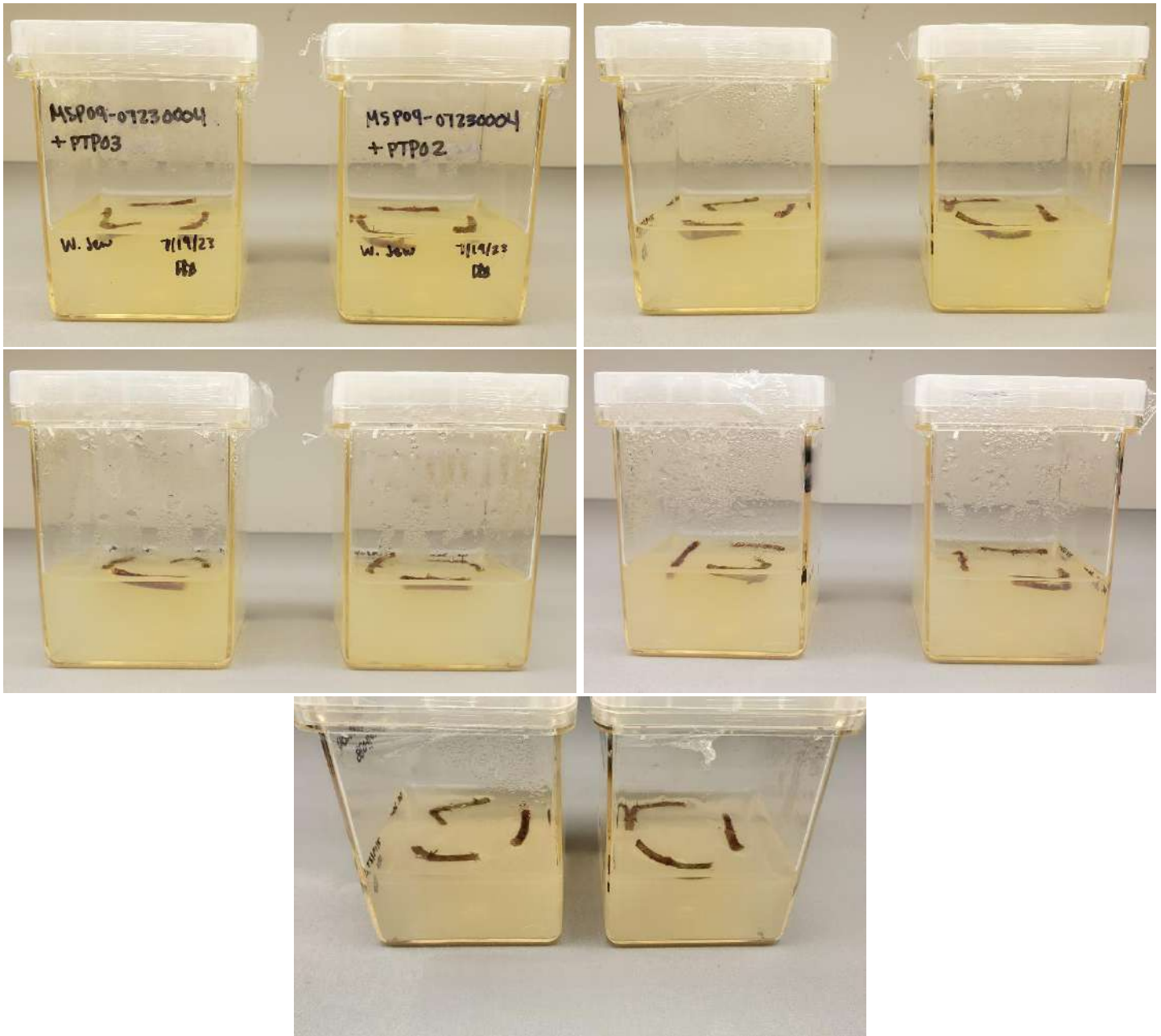


**Figure 8. Potato cuttings after four weeks of growth.** Growth was extremely comparable, with each cutting in each vessel having shoots of comparable height and leaf growth. Root growth was visible in each vessel.

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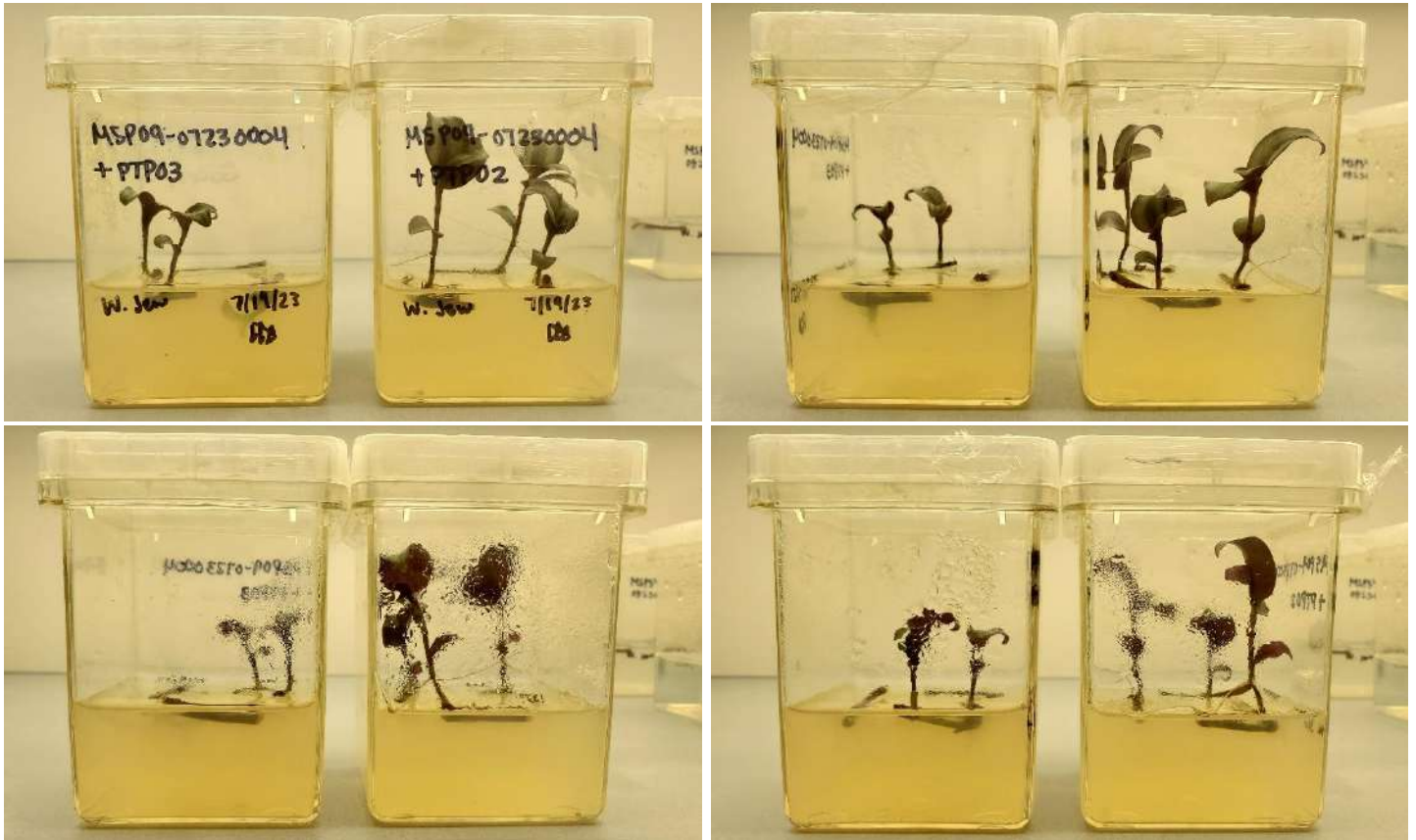
### Wandering Jew

Both vessels were cultured with three 1-inch cuttings each from the same mother wandering Jew plant.



**Figure 9. Wandering Jew cuttings after one week of growth.** One cutting in each vessel showed a barely emerging shoot at this stage. The gelling agents developed a tan cast due to the phenolics released by the cuttings. The last image gives the most accurate reflection of the gelling agent color; please be advised this color will vary based on the screen on which it's viewed.

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**Figure 10. Wandering Jew cuttings after four weeks of growth.** All cuttings grew one shoot each with the exception of one cutting in PTP03. The shoots were slightly shorter with smaller leaves in PTP03, and the stalk diameter was the same as those in PTP02. The gelling agents maintained their tan cast but did not get darker.



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### Conclusion

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Caisson Labs, Inc, is fully confident in our new TC Gel. With its suitability for a wide variety of plant cell culture media concentrations, excellent performance in vitro, and comparability to our previous formulation, we are confident our new PTP03 will meet our customers' needs.

To experience the benefits of PTP03 for themselves, customers are invited to contact our Customer Service team via email for a free sample. We look forward to hearing from you!