

# Chromobacterium subtsugae strain PRAA4-1<sup>T</sup> (016329) Fact Sheet

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## Summary

*Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup> is a gram-negative, violet-pigmented bacterium that was isolated from soil under an eastern hemlock (*Tsuga canadensis*) in the Catoctin Mountain region of central Maryland. In light of the demonstrated insecticidal and miticidal capabilities of *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup>, Marrone Bio Innovations proposed to register both a manufacturing-use pesticide product, MBI-203 TGAI, and an end-use pesticide product, MBI-203 EP Bioinsecticide (formerly MBI-203 EP), containing this bacterium. MBI-203 EP Bioinsecticide will be used to control label-specified insect and mite pests (e.g., European corn borer, citrus rust mite, and stink bugs) on agricultural and greenhouse crops, including vegetables, fruit, flowers, bedding plants, ornamentals, and turf. Use of *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup>, as an insecticide and miticide and in accordance with label directions, is not expected to cause any unreasonable adverse effects on human health or the environment.

### I. Description of the Active Ingredient

*Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup> is a gram-negative, violet-pigmented bacterium that was isolated from soil under an eastern hemlock (*Tsuga canadensis*) in the Catoctin Mountain region of central Maryland. The United States Department of Agriculture found this isolate of *Chromobacterium subtsugae* to be orally toxic to Colorado potato beetle (*Leptinotarsa decemlineata*) larvae, small hive beetle (*Aethina tumida*) larvae, southern corn rootworm (*Diabrotica undecimpunctata*) larvae and adults, and southern green stink bug (*Nezara viridula*) adults. Additional testing has shown that *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup>-treated diet resulted in reduced feeding in beet armyworm (*Spodoptera exigua*), cabbage looper (*Trichoplusia ni*), tobacco budworm (*Heliothis virescens*), diamondback moth (*Plutella xylostella*), and southern corn rootworm, suggesting this microbe's insecticidal activity is due to reduction in weight or inhibition of feeding.

### II. Use Sites, Target Pests, and Application Methods

**Use Sites:** Various agricultural and greenhouse crops (e.g., vegetables and turf)

**Target Pests:** Various insects and mites

**Application Methods:** MBI-203 EP Bioinsecticide (EPA Reg. No. 84059-10): Applied via standard ground or aerial spray equipment and chemigation at a rate of 2–12 quarts per acre.

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### III. Assessing Risks to Human Health

Given the results of required toxicity/pathogenicity testing and the absence of occurrences of hypersensitivity incidents during testing and production of *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup>, no human health risks are expected when pesticides products containing *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup> are used according to their respective label directions. Despite the low toxicological profile of *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup>, baseline personal protective equipment (PPE) is required for handlers that may be exposed to the active ingredient, due to their occupation, for prolonged periods or numerous times. Handlers working with *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup> in agricultural settings must wear a long-sleeved shirt, long pants, socks, shoes, waterproof gloves, and a dust/mist filtering respirator meeting National Institute for Occupational Safety and Health (NIOSH) standards of at least N-95, R-95, or P-95. Additional PPE may be required based on a product-specific basis.

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### IV. Assessing Risks to the Environment

EPA performed an environmental risk assessment based on the data and data waiver rationale provided by the applicant and determined that the proposed uses of *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup> do not pose significant risk to nontarget organisms when used according to label directions. Based on study results, there are concerns of toxicity to terrestrial arthropods, aquatic invertebrates, and honey bees. Use sites and application methods, in combination with mitigating label language (e.g., requirement for a 75-foot buffer between aquatic and treatment areas for aerial applications), however, will limit exposure. EPA has made “no effect” determinations for direct effects, indirect effects, and effects to habitat (including designated critical habitat) to listed species for all foliar and soil-directed applications to crop plants treated within greenhouses. On the other hand, EPA concludes that all outdoor foliar applications made by chemigation and aerial spray equipment have the potential to cause direct effects, indirect effects, and effects to habitat (including designated critical habitat) to listed species.

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### V. Regulatory Information

The first pesticide products, containing *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup> as an active ingredient, were registered on August 26, 2011 (MBI-203 TGAI, EPA Reg. No. 84059-9; MBI-203 EP Bioinsecticide, EPA Reg. No. 84059-10). Moreover, EPA has concluded that there is a reasonable certainty that no harm will result to the United States population, including infants and children, from aggregate exposure to residues of *Chromobacterium subtsugae* strain PRAA4-1<sup>T</sup>; thus, a permanent tolerance exemption for this active ingredient was established under 40 CFR § 180.1305.

## **VI. Regisgrant Information**

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## **VII. Additional Contact Information:**

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