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## CHARACTERIZATION OF THE EFFECTS OF SMALL MOLECULES ON MOUNTAIN PINE BARK BETTER FUNGAL SYMBIONTS (POSTER)

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Several species of the bark beetle, in particular the Mountain Pine Beetle (*Dendroctonus ponderosae*), are responsible for killing large numbers of trees over vast areas in western North America, including over 31 million trees in Montana. Most or all of these bark beetle species are host to a variety of ophiostomatoid fungi. Many of these fungi are carried in the mycangia, a specialized structure of the exoskeleton, and are critical nutritional mutualists to the beetle's life cycle. Thus, one possible means of controlling or managing a beetle outbreak is to inhibit the growth of their associated fungi. These fungal spores are also indirectly introduced to the tree interior where they invade the phloem and sometimes the xylem of the tree that can possibly disrupt the water flow. Therefore, another possible prevention method might be inhibiting the fungi from mycelial growth on the tree itself. The first stage of this research is to test whether small molecule inhibitors are able to prevent growth for the fungal species associated with mountain pine beetles, (*Grosmannia clavigera* and *Ophiostoma montium*). The fungal species have shown sensitivity to the small molecule inhibitor, BH3I, especially *G. clavigera*. Because BH3I has potent antifungal activity, we will test its derivatives in hopes of finding additional small inhibitor molecules to effectively obstruct fungal growth. We can then begin testing different concentrations of the effective small molecules on the fungi, and furthermore, we can develop a tree-like environment to begin examining the effects of the inhibitors on the xylem and phloem of trees.