

GLUTAMATE SIGNALING AND SIGNAL TRANSDUCTION IN *ARABIDOPSIS THALIANA* AND *MENTHA SPICATA*: PRELIMINARY WORK. Kelli A. Smith², Nathan L. Giles¹,

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Glutamate is the primary excitatory neurotransmitter in the mammalian nervous system and mediates a broad range of physical function and sensory experience. Working in concert with many other neurotransmitters, this excitatory amino acid is an essential component of higher level neuronal systems and has been studied extensively in human health, development and disease. Somewhat surprising is the accumulated data of the past decade of research which shows a large number of glutamate receptor-like proteins in plants. Many of these receptors have been shown to function as ionotropic receptors, and are gated by glutamate and related amino acid ligands. Our recent work has been to establish a new laboratory for study of neurotransmitter-like compounds in plant models. A botanical model system lends itself well to both the time course and resource infrastructure of undergraduate research at RIT. Long term benefits include the opportunity to study human disease-related receptor biology in a highly isolated and tightly controlled setting, and also to potentially create a better understanding of how advanced signaling systems evolved from simple transport channels & receptors. To that end, we have developed preliminary protocols for assessing root formation in *Mentha spicata* and have also piloted work in sprouting of *Arabidopsis thaliana* seeds on Bacto Agar.