Cryptosporidium infection affects many mammalian species. Both cattle and humans suffer from infection with the protozoal parasite *Cryptosporidium parvum*. The parasite causes severe diarrhea and is particularly problematic for immunocompromised patients. The current standard of care, nitazoxanide, has only modest efficacy in children and is equivalent to placebo in immunocompromised patients.

Dr. Huston’s lab has discovered three chemical scaffolds found to be toxic to a single species of *Cryptosporidium* in vitro.

Outbreaks of Cryptosporidium infection occur in areas with compromised sanitation, such as the developing world, and following natural disasters. Cryptosporidium organisms can contaminate food and water supplies, exposing those most at risk: young children, the elderly, pregnant women, and the immunocompromised.

We have identified three novel chemical scaffolds (namely quinolin-8-ol, allopurinol-based, and 2,4- diamino-quinazoline) that exhibited sub-micromolar potency against *C. parvum* (54 nM, 40 nM, and 440 nM respectively). Potency was conserved in a sub-set of compounds from each scaffold with variable physicochemical properties, and two of the scaffolds identified appear to exhibit more rapid inhibition of *C. parvum* growth than the current standard of care drug, nitazoxanide, making them excellent candidates for further development. Our exploration of the Malaria Box for activity against *C. parvum* illustrates the compound collection’s utility as a source of quality hits for drug development in non-*Plasmodium* parasites and chemical probes to elucidate basic biological process in difficult to study microbes like *Cryptosporidium*.

**I.P. Status**
Provisional Patent Application Filed

**Advantages**
- More effective than current therapy for *C. parvum* in severely infected patients and the immunocompromised
- Faster acting and more potent than current therapy
- Potential treatment for infections caused by other protozoal parasites like *Eimeria* species, *Giardia, Isospora belli*, and *Entamoeba histolytica*

**Applications**
- Pharmaceutical companies currently making Anti-protozoal medication
- Companies marketing to immunosuppressed populations
- Animal health divisions making anti-biotics, anti-parasitics, and antifungals for production animals

Learn more about Dr. Huston’s research at: [http://bit.ly/HNNb7d](http://bit.ly/HNNb7d)

For more information and licensing opportunities, contact us at: Ph: 802-656-8780 or email: innovate@uvm.edu

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