

**Non-Confidential Summary, VCU 04-56, Buck et al, “*Cryptosporidium hominis* genes and gene products for chemotherapeutic, immunotherapeutic, immunoprophylactic, and diagnostic applications”**

This disclosure includes the sequence of the eight chromosome ~ 9.2 Mb genome of *C. hominis*. The *Cryptosporidium* genus causes acute gastro-enteritis and diarrhea worldwide. Two species, *C. hominis* and *C. parvum*, which differ in host range, genotype and pathogenicity, are most relevant to humans. *C. hominis* is restricted to humans, whereas *C. parvum* also infects other mammal species. Currently there are no treatments for this disease, which is rampant in many developing countries (Latin America, Africa, Asia). The new genes described in this disclosure present novel targets for chemo- and immuno- therapy and prophylaxis for *Cryptosporidiosis*, a disease for which no such agents currently exist.

The newly identified genes of *C. hominis* are of potential use in chemotherapy, immunotherapy, immunoprophylaxis, and diagnosis. These genes fall into several general classes: (1) transporters; (2) receptors; (3) surface and secreted proteins; (4) organellar proteins; (5) signal transduction proteins and kinases; (6) critical metabolic enzymes; and (7) specific sequence differences. The disclosure discusses the full application for each of these classes. These genes and the encoded proteins have not been used as targets for possible immuno- or chemotherapeutic agents, or as tools for detection/diagnosis of the parasites. The advantages of these genes include: (1) they are essential to the viability of the parasite; (2) they are localized on the surface of the parasite; (3) they should be accessible to the host immune system or to blocking agents; (4) there is considerable knowledge about these processes, such as transport, metabolism, and analogs that block them can be designed; (5) the proteins / peptides thereof can be synthesized chemically or in recombinant bacteria; (6) the peptides differ significantly from host molecules, and analogs that block the parasite version can be designed so that they do not block any host function; (7) vaccinogens can be designed so that the host immune response will act only on the parasite protein.

**Virginia Commonwealth University is seeking a corporate sponsor to license and commercialize this technology. For more information, please contact:**

**Ivelina Metcheva, Ph.D., MBA  
Interim Director  
Office of Technology Transfer  
Virginia Commonwealth University  
BioTech One, Suite 113  
800 East Leigh Street  
Richmond, Virginia 23298-0568**

**(804) 828-5188  
ismetche@vcu.edu  
ott@vcu.edu**