

PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Hypervirulent knockout

ArticleInfo		
ArticleID	:	4052
ArticleDOI	:	10.1186/gb-spotlight-20010417-02
ArticleCitationID	:	spotlight-20010417-02
ArticleSequenceNumber	:	123
ArticleCategory	:	Research news
ArticleFirstPage	:	1
ArticleLastPage	:	2
ArticleHistory	:	RegistrationDate : 2001-04-17 OnlineDate : 2001-04-17
ArticleCopyright	:	BioMed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	130592211

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Most studies of parasite virulence have focused on identifying genes whose loss causes decreased virulence or infectivity. In the April 13 *Science*, Cunningham *et al.* report the characterization of two genes in the protozoan parasite *Leishmania*, mutation of which causes hypervirulence (*Science* 2001, **292**:285-287). Stephen Beverley and colleagues at Washington University demonstrate that *Leishmania* mutants lacking the genes for pteridine reductase 1 (PTR1) or biopterin transporter BT1 exhibit increased virulence, lesion formation and parasite burden when inoculated into mice. The *ptr1*- and *bt1*-lines had lower levels of tetrahydrobiopterin (H4B) which caused increased metacyclogenesis, differentiation to the infective form. Hence, genes regulating pteridine metabolism have evolved to control parasite differentiation and virulence.

References

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