

August 20-22, 2012 Embassy Suites Las Vegas, USA

B cell epitope mapping of avian Hepatitis E virus capsid protein

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A vian Hepatitis E virus (HEV), which is a non-enveloped, positive-sense, single-stranded RNA virus, belongs to the genus Hepevirus which also includes swine and human HEVs. Although the entire genome shares only approximately 50% nucleotide sequence identities with human and swine HEVs, avian HEV is related genetically and antigenically to human and swine HEVs. The capsid protein of avian HEV, encoded by ORF2 gene, is very immunogenic and induces neutralization antibodies. Six major antigenic domains, I (aa 389-412), II (aa 481-492), III (aa 556-566), IV (aa 583-600), V (aa 339-382) and VI (aa 23-88), were predicted in the capsid protein of avian HEV. In domain I, the B-cell epitopes are located in the second half of the domain (aa 400-410) and one epitope is common to avian, human and swine HEVs. In domain II, one or more B-cell epitopes are located in aa 477-492 and are unique to avian HEV. In domain IV, one or more epitopes are shared between avian and human HEVs. In domain V, three epitopes are identified in which two epitopes are common to avian, human and swine HEVs. In addition, antibodies to domain V antigens are persistent in chickens experimentally challenged with avian HEV stock. However, antibodies to domain VI antigens are transient in the challenged chickens. Two neutralization epitopes located in aa476-513 and aa 513-570 are identified since the monoclonal antibodies recognized the two epitopes can neutralize the virus infectivity and capture the virus. Another two epitopes located in domain V and domain I may be neutralization epitopes because these two monoclonal antibodies recognized the two epitopes.

Biography

En-Min Zhou has completed his Ph.D in 1993 from University of Manitoba, Canada and postdoctoral studies from Southwest Foundation for Biomedical Research in San Antonio, Texas. He has spent 21 years in Canada and USA served for Agriculture Canada and Iowa State University. He currently is the distinguished professor and Dean of College of Vet Med at Northwest A&F University. He has published more than 80 papers in reputed journals and serving as editorial board members of several repute journals.

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