

Role of MMR II vaccine contamination with GAD65 containing chick embryo cell culture in the etiology of type 1 diabetes

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Background

Autoimmunity against glutamate decarboxylase (GAD) has been associated with type 1 diabetes. GAD65 (65kDa) and GAD67 (67kDa, to a lesser extent) are involved in type 1 diabetes.^{1,2}

Following an anecdotal report of type 1 diabetes diagnosis a few weeks after measles, mumps and rubella (MMR) vaccine administration, MMR vaccine contents were examined. Major proteins in the vaccine apart from the measles, mumps and rubella live viruses were chicken embryo cell culture proteins.³

GAD65 and GAD67 are expressed during chicken embryogenesis.⁴

Method

GAD65 *Gallus gallus* (chicken) protein sequence was obtained from Uniprot.⁵

BLASTP was used to determine homology to human GAD65.⁶

Results

GAD65 protein comparison between human and chicken reveals 95% sequence homology as shown below.

glutamic acid decarboxylase, partial [Homo sapiens]

[CAB62572.1](#) 419 1

[GenPeptGraphics](#) [Next Match](#) [Previous Match](#)

Alignment statistics for match #1

Score	Expect	Method	Identities	Positives	Gaps
575 bits(1481)	0.0	Compositional matrix adjust.	267/282(95%)	277/282(98%)	0/282(0%)
Query	1	EMIGWPGGCGDGFSPGGAISNMYAMLIARFKMFPEVKEKGMAAIPRLVAFTSEHSHFSV			60
		E+IGWPGG GDGIFSPGGAISNMYAM+IARFKMFPEVKEKGMAA+PRL+AFTSEHSHFS+			
Sbjct	60	EIIGWPGGSGDGFSPGGAISNMYAMMIARFKMFPEVKEKGMAALPRLIAFTSEHSHFSL			119
Query	61	KKGAAALGIGTDSVILIGCDERGMIPSDLERRILEAKQKGFVPLVSATAGTTVYGAFD			120
		KKGAAALGIGTDSVILI CDERGMIPSDLERRILEAKQKGFVPLVSATAGTTVYGAFD			
Sbjct	120	KKGAAALGIGTDSVILIKCDERGMIPSDLERRILEAKQKGFVPLVSATAGTTVYGAFD			179
Query	121	PLIAIADICKKYKIWMHVDAWGGGLLMSRKHKWKLVNVERANSVTWNPBKMMGVPLQCS			180
		PL+A+ADICKKYKIWMHVD AWGGGLLMSRKHKWKLVNVERANSVTWNPBKMMGVPLQCS			
Sbjct	180	PLLAVADICKKYKIWMHVDAWGGGLLMSRKHKWKLVNVERANSVTWNPBKMMGVPLQCS			239
Query	181	ALLVREEGLMQSCNQMHASYLFQQDKHYDLSYDTGDKALQCGRHVDVFKLWLMWRAKGT			240
		ALLVREEGLMQ+CNQMHASYLFQQDKHYDLSYDTGDKALQCGRHVDVFKLWLMWRAKGT			
Sbjct	240	ALLVREEGLMQNCNQMHASYLFQQDKHYDLSYDTGDKALQCGRHVDVFKLWLMWRAKGT			299

Query 241 GFEAQIDKCLELAEYLYNKIKNREGYEMVFDGKPQHTNVCFW 282
GFEA +DKCLELAEYLYN IKNREGYEMVFDGKPQHTNVCFW
Sbjct 300 GFEAHVDKCLELAEYLYNIIKNREGYEMVFDGKPQHTNVCFW 341

Discussion

The results above provide strong evidence that chicken embryo cell culture proteins in the MMR vaccine can cause the development of antibodies against chicken GAD65 which cross-react with human GAD65 protein to cause type 1 diabetes.

This is very similar to the Pandemrix vaccine causing narcolepsy.⁷

Action

Vaccine design and safety processes have fundamental problems that need to be immediately addressed to avoid such devastating consequences.⁸

References

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