Role of NMDA receptor autoimmunity induced by food protein containing vaccines, in the etiology of autism, type 1 diabetes, neuropsychiatric and neurodegenerative disorders

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Abstract

Vaccines contain numerous animal and plant proteins (soy, peanut, sesame, maize, wheat, etc.). Vaccine excipients are derived from plant or animal sources. The mechanism of animal protein induced autoimmunity was previously described. Following a report associating maternal gluten intake to type 1 diabetes in the offspring, plant proteins were investigated.
The Pandemrix vaccine induced narcolepsy due to molecular mimicry between a H1N1 nucleoprotein peptide in the vaccine and the human hypocretin receptor 2. The BLASTP match score for this peptide was used as a baseline. BLASTP showed strong sequence alignment between gliadin, a wheat protein, and the human ionotropic N-methyl-D-aspartate receptor (NMDAR).
Analyzing further, strong sequence alignment was found between soy, peanut, sesame, maize, wheat and human glutamate receptors (GR), both ionotropic and metabotropic. There are reports of boosted wheat allergy and de novo synthesis of NMDAR antibodies following immunization. Once immunized with plant derived antigens, antibody levels will be increased by dietary exposure to these antigens.
GR are expressed in the brain, heart, pancreas and the T cells of the immune system. Vaccine induced GR antibodies (GRA) disrupt or destroy GR thus precipitating numerous disorders. This explains the epidemic of food intolerances and food associated immune mediated disorders.
Intestinal barrier disruption has been proposed as a cause for food associated autoimmune disorders. However, intestinal barrier disruption may itself be the result of GRA. GRA also disrupt the blood-brain barrier. This allows other anti-brain antibodies access to their targets. Vaccine-induced GRA can therefore explain a wide variety of disorders including autism, type 1 diabetes, attention deficit hyperactivity, epilepsy, schizophrenia, autoimmune encephalitis, Huntington's, Parkinson's, dementia, cancer and allergies.
The ultimate solution is to immediately remove all non-target proteins from all vaccines.

Background

Vaccines contain numerous animal and plant proteins (soy, peanut, sesame, maize, wheat, etc.). There are no labeling laws or regulations.(1) There are no safety specifications that regulate the quantity of these proteins contained in vaccines.(2) Vaccine excipients and growth media can be derived from plant and animal sources.(1,3) As an example, the appendix at the end of the document shows Polysorbate 80, a vaccine excipient, that is derived from maize and wheat. This is a source of maize and wheat protein contamination of vaccines. Manufacturers do not perform any testing on allergens in these products. Hydrolyzed gelatin used in vaccines was assumed to be safe. However, after numerous cases of IgE mediated gelatin allergy development following vaccination with gelatin containing vaccines, it was determined that the gelatin was “poorly hydrolyzed”.(4)

The mechanism of animal proteins in vaccines inducing autoimmunity was previously described. (5) Following a report associating maternal gluten intake to type 1 diabetes (T1D) in the offspring(6), the role of plant proteins in autoimmunity was investigated. Maternal gluten intake affecting the offspring is similar to the problem of maternal milk intake causing autism in the offspring.(7,8) Milk related autism is mediated by folate receptor alpha antibodies (FRAA). These FRAA have been demonstrated to have higher affinity to bovine folate receptor proteins than human folate receptor proteins. So these FRAA were synthesized directed against bovine FR. Bovine FR has 90% homology to human FR.(9) So FRAA directed against bovine FR, cross-react, bind/block human folate receptors in the choroid plexus, block folate uptake to the brain thus resulting in autism spectrum disorders.(10) FRAA levels are increased by dietary intake of bovine milk as bovine milk contains the bovine folate receptor protein.(9) Therefore milk intake during pregnancy can affect the risk of autism in the offspring when the mother is producing FRAA. The role of bovine milk protein containing vaccines in the induction of FRAA was previously described.(11) Therefore the role of wheat protein (including gluten) containing vaccines, in T1D was investigated.

Methods

Protein sequences were obtained from Uniprot(12). BLASTP(13) was used to perform protein sequence alignment. The Pandemrix vaccine induced narcolepsy due to molecular mimicry between an influenza virus H1N1 nucleoprotein peptide (a non-target protein) in the vaccine and the human hypocretin receptor 2.(14) The BLASTP match score for this peptide (19.3) from a previous analysis(15) was used as a baseline. Any match score greater than 19.3 indicates high risk of autoimmunity.

Results and Discussion

BLASTP shows strong sequence alignment between gliadin and the human ionotropic N-methyl-D-aspartate receptor (NMDAR). Below are BLASTP results of sequence alignment between Alpha/beta-gliadin MM1 and human self proteins.

P18573 (GDA9_WHEAT) vs. homo sapiens

glutamate receptor, ionotropic, N-methyl D-asparate-associated protein 1 (glutamate binding), isoform CRA_c [Homo sapiens]

Score	Expect	Method	Identities	Positives	Gaps
33.9 bits(76)	1.1	Compositional matrix adjust.	44/98(45%)	46/98(46%)	23/98(23%)

```
Query 62 PYPQP--QPFPSQQPYLQLQPFPQPQLPYPQ--------PQLPYPQ---PQLPYPQPQPF 108
         PYPQP  QP P  QP     P P PQ  YPQ        PQ PYPQ   PQ PYPQ
Sbjct 41 PYPQPPFQPSPYGQPGYPHGPSPYPQGGYPQGPYPQGGYPQGPYPQEGYPQGPYPQGG-- 98

Query 109 RPQQPYPQS--------QPQYSQPQQPISQQQQQQQQQ 138
           PQ PYPQS        QPQ    Q P S Q    Q++
Sbjct 99  YPQGPYPQSPFPPNPYGQPQVFPGQDPDSPQHGNYQEE 136
```

The match score (33.9) is higher than the match score of 19.3 between H1N1 nucleoproteins and the human hypocretin receptor 2, which resulted in Pandemrix vaccine induced narcolepsy.(14)

This is a sample result. There are numerous peptide matches with scores above the baseline value of 19.3. So there is a high probability of wheat protein containing vaccines inducing antibodies that cross-react and bind to human NMDAR.

Similar to the above result, a 33-mer gliadin peptide binding to the glutamate receptor GRINA protein was previously reported as an explanation for extraintestinal manifestations of celiac disease.(16)

Analyzing further, strong sequence alignment was found between soy, peanut, sesame, maize, wheat and human glutamate receptors (GR), both ionotropic and metabotropic.

GRM1_HUMAN Metabotropic glutamate receptor 1 vs. plant proteins

glutamate receptor 3.1-like protein [Triticum aestivum] (wheat)

Score	Expect	Method	Identities	Positives	Gaps
65.5 bits(158)	9e-11	Compositional matrix adjust.	93/432(22%)	177/432(40%)	107/432(24%)

```
Query  81   AMFHTLDKINADPVLLPNITLGSEIRDS-CWHSSVALEQSIEFIRDSLISIRDEKDGINR  139
            A+   L+ IN+DP +L   TL  +++D+ C+   + + Q ++F+   +I++
Sbjct  50   AIHTALEDINSDPTVLNGTTLKVQMKDTNCFDGFLGMVQ-LQFMETDVIAL---------  99

Query  140  CLPDGQSLPPGRTKKPIAGVIGPGSSSVAIQVQNLLQLFDIPQIAYSATSIDLSDKTL--  197
                                IGP  S+++  +  +     +P ++++      SD TL
Sbjct  100  --------------------IGPQCSTISHMISYVANELQVPLMSFA------SDATLSS  133

Query  198  --YKYFLRVVPSDTLQARAMLDIVKRYNWTYVSAVHTEGNYGESGMDAFKELAAQEGLCI  255
              + +F+R  PSD  Q  A+ ++V   +W  V+A++ +  YG +G+ A  +    +   I
Sbjct  134  IQFPFFVRTGPSDLYQMAAVAEVVDYNHWKIVTAIYIDNVYGRNGIAALDDALTLKRCKI  193

Query  256  AHSDKIYSNAGEKSFDRLLRKLRERLPKARVVVCFCEGMTVRGLLSAMRRLGVVGE-FSL  314
            ++     SNA       LL  +    P  RV+V          L S   +L ++G  +
Sbjct  194  SYKVGFPSNAKRSDLINLLVSVSYMEP--RVIVLHTGAEPGLKLFSVANQLNMMGNGYVW  251

Query  315  IGSD---GWADRDEVIEGYEVEA-NGGITIKLQSPEVRSFDDYFLKLRLDTNTRNPWFPE  370
            I +D    + D +  +    +    G +T++   P  +          + +N  + W
Sbjct  252  IATDWLSAYLDANSSVPAETISGLQGVLTLRPHIPNSK----------MKSNLVSKW---  298

Query  371  FWQHRFQCRLPGHLLENPNFKRICTGNESLEENY--VQDSKMGF-VINAIYAMAHGL---  424
                                     G +S + NY  ++ +  GF V ++++A+A  L
Sbjct  299  -------------------------GTQSKKYNYSDLRVNTYGFYVYDSVWAVARALDAF  333

Query  425  ----------QNMHHALCPGHVGLCDAMKPID-GSKLLDFLIKSSFIGVSGEEVWFDEKG  473
                       ++H  +  G     +AM   D GSKLL+ + K +F G+SG +V FD  G
Sbjct  334  FDDGGRISFSNDLHDGI--GGTLHLEAMSIFDMGSKLLEKIRKVNFSGISG-QVQFDAVG  390

Query  474  DAPG-RYDIMNL  484
            +     YDI+N+
Sbjct  391  NLIHPAYDIINV  402
```

Glutamate receptor 2.7 [Zea mays] (maize or corn)

Score	Expect	Method	Identities	Positives	Gaps
78.2 bits(191)	3e-13	Compositional matrix adjust.	79/333(24%)	144/333(43%)	35/333(10%)

glutamate receptor 3.4 [Glycine max] (soy)

Score	Expect	Method	Identities	Positives	Gaps
68.9 bits(167)	2e-10	Compositional matrix adjust.	81/420(19%)	166/420(39%)	63/420(15%)

LOW QUALITY PROTEIN: glutamate receptor 3.5-like [Sesamum indicum] (sesame)

Score	Expect	Method	Identities	Positives	Gaps
68.6 bits(166)	3e-10	Compositional matrix adjust.	44/167(26%)	80/167(47%)	4/167(2%)

glutamate receptor 3.7-like [Arachis hypogaea] (peanut)

Score	Expect	Method	Identities	Positives	Gaps
66.2 bits(160)	1e-09	Compositional matrix adjust.	52/177(29%)	78/177(44%)	30/177(16%)

Human ionotropic NMDA vs. plant proteins

glutamate receptor 3.1-like protein [Triticum aestivum] (wheat)

Score	Expect	Method	Identities	Positives	Gaps
153 bits(386)	4e-38	Compositional matrix adjust.	202/930(22%)	377/930(40%)	157/930(16%)

```
Query  21   ACDPKIVNIGAVLS-TRKHEQMFREAVNQANKRHGSWKIQLNATSVTHKPNAIQMALSVC  79
            A  P +VNIG++L        +   A++ A +   S    LN T++      +QM  + C
Sbjct  25   ATGPPVVNIGSILQFDSTTGGVAAVAIHTALEDINSDPTVLNGTTL-----KVQMKDTNC  79

Query  80   ED----LISSQVYAILVSHPPTPNDHFTPTPVSYTAGFYRIPVLGLTTRMSIYSDKSIHL  135
             D    ++  Q     V     P        +SY A   ++P++   +  ++    SI
Sbjct  80   FDGFLGMVQLQFMETDVIALIGPQCSTISHMISYVANELQVPLMSFASDATL---SSIQF  136

Query  136  SF-LRTVPPYSHQSSVWFEMMRVYSWNHIILLVSDDHEGRAAQKRLETLLEERESKAEKV  194
             F +RT P   +Q +   E++    W  +  +  D+  GR     L+  L  +  K
Sbjct  137  PFFVRTGPSDLYQMAAVAEVVDYNHWKIVTAIYIDNVYGRNGIAALDDALTLKRCKISYK  196

Query  195  LQFDPGTK--NVTALLMEAKELEARVIILSASEDDAATVYRAAAMLNMTGSGYVWLVGE-  251
            + F    K  ++  LL+    +E RVI+L    +    ++  A  LNM G+GYVW+  +
Sbjct  197  VGFPSNAKRSDLINLLVSVSYMEPRVIVLHTGAEPGLKLFSVANQLNMMGNGYVWIATDW  256

Query  252  --REISGNALRYAPDGILGLQLI--------NGKNESAHIS-------------------  282
                +  N+     + I GLQ +        N K +S  +S
Sbjct  257  LSAYLDANS-SVPAETISGLQGVLTLRPHIPNSKMKSNLVSKWGTQSKKYNYSDLRVNTY  315

Query  283  -----DAVGVVAQAVHELLE---KENITDPPRGCVGNTNIWKTGPLFKRVLMSSKYAD--  332
                 D+V  VA+A+    +   + + ++     +G T   +   +F    M SK  +
Sbjct  316  GFYVYDSVWAVARALDAFFDDGGRISFSNDLHDGIGGTLHLEAMSIFD---MGSKLLEKI  372

Query  333  ------GVTGRVEFNEDGDRKFANYSIMNLQNRKLVQVGIYNGTHVI-------------  373
                  G++G+V+F+  G+     Y I+N+    +  +G ++    +
Sbjct  373  RKVNFSGISGQVQFDAVGNLIHPAYDIINVIGNGMRTIGFWSNYSGLLSTVSPEALYSKP  432

Query  374  PN----DR---KIIWPGGETEKPRGYQMST---RLKIVTIHQEPFVYVKPTLSDGTCKEE  423
            PN    D+    +IWPG   ++PRG+   +   +LKI   ++  F            KE
Sbjct  433  PNISLADQHLYDVIWPGETAQRPRGWVFPSNAKQLKIGVPNRFSF------------KEI  480

Query  424  FTVNGDPVKKVICTGPNDTSPGSPRHTVPQCCYGFCIDLLIKLARTMNFTYEVHLVADGK  483
             TV              D + GS +        G+CID+  +    + +      V  G
Sbjct  481  VTV--------------DNATGSMK--------GYCIDVFTQALALLPYPVSYKFVPFG-  517

Query  484  FGTQERVNNSNKKEWNGMMGELLSGQADMIVAPLTINNERAQYIEFSKPFKYQGLTIL--  541
                   N +    ++ ++  + S + D  +  + I   R    +F++PF   GL IL
Sbjct  518  -------NGTENPNYDKLVQMIESNEFDAAIGDIAITMRRTVTFDFTQPFIETGLVILAP  570

Query  542  VKKEIPRSTLDSFMQPFQSTLWLLVGLSVHVVAVMLYLLDRFSPFGRFKVNSEEEEEDAL  601
            VK+ I  S   +F+QPF   +W + GL   +V V++++L+        ++N +
Sbjct  571  VKEHITSSW--AFLQPFSLEMWCVTGLFFLIVGVVIWVLEH-------RINDDFRGSVCQ  621

Query  602  TLSSAMWFSWGVLLNSGIGEGAPRSFSARILGMVWAGFAMIIVASYTANLAAFLVLDRPE  661
             + + ++FS+  L           S   R + ++W    +IIV+SYTA+L + L + + +
Sbjct  622  QIIT-IFFSFSTLF---FAHENTMSALGRGVLIIWLFVVLIIVSSYTASLTSILTVQQLD  677

Query  662  ERITGINDPRLRNPSDKFIYATVKQSSVDIYFRRQVELSTMYRHMEKHNYESAAEAIQ-A  720
              I GI+D +  N    F   +  Q     Y  +++ +S   R     + +  AEA++
Sbjct  678  TSIKGIDDLKNSNDPIGFQVGSFAQD----YMVKELNISRS-RLRALGSPQEYAEALKIG  732
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Query  721  VRDNKLHAFIWDSAVLEFEASQKCDLVTTGELFFRSGFGIGMRKDSPWKQNVSLSILKSH  780
             ++  + A + +   +E   S  C +   G  F   G+G    +DSP + ++S +IL
Sbjct  733  PKEGGVMAIVDERPYVELFLSTYCKIAVAGTDFTSRGWGFAFPRDSPLQVDLSTAILSLS  792

Query  781  ENGFMEDLDKTWVRYQECDSRSNA---PATLTFENMAGVFMLVAGGIVAGIFLIF--IEI  835
            ENG ++ +   W+   EC + ++       L  E+  G+F++     V  + L F  +
Sbjct  793  ENGELQRIHSKWLNTGECTTDNSEFVDSNQLRLESFLGLFLICGVACVLALLLYFGIMLC  852

Query  836  AYKRHKDARRKQMQLAFAAVNVWRKNLQDR  865
             Y RH+  +  +  ++F       KN++ R
Sbjct  853  KYLRHEPRKSLRRFISFVHGKEPPKNMERR  882
```

Glutamate receptor 3.4 [Zea mays] (corn or maize)

Score	Expect	Method	Identities	Positives	Gaps
169 bits(429)	5e-42	Compositional matrix adjust.	176/780(23%)	311/780(39%)	126/780(16%)

glutamate receptor 3.4-like isoform X2 [Arachis hypogaea] (peanut)

Score	Expect	Method	Identities	Positives	Gaps
169 bits(427)	6e-42	Compositional matrix adjust.	174/805(22%)	339/805(42%)	141/805(17%)

glutamate receptor 3.4 isoform X2 [Sesamum indicum] (sesame)

Score	Expect	Method	Identities	Positives	Gaps
164 bits(414)	2e-40	Compositional matrix adjust.	177/810(22%)	330/810(40%)	139/810(17%)

glutamate receptor 3.4 isoform X1 [Glycine max] (soy)

Score	Expect	Method	Identities	Positives	Gaps
163 bits(412)	6e-40	Compositional matrix adjust.	177/799(22%)	324/799(40%)	155/799(19%)

Human GABA-A (epilepsy associated self antigen(17)) vs. plant proteins

ATP-citrate synthase beta chain protein 2 [Glycine max] (soy)

Score	Expect	Method	Identities	Positives	Gaps
32.0 bits(71)	11	Compositional matrix adjust.	19/74(26%)	39/74(52%)	5/74(6%)

cytochrome P450 78A7 [Sesamum indicum] (sesame)

Score	Expect	Method	Identities	Positives	Gaps
29.3 bits(64)	80	Compositional matrix adjust.	16/41(39%)	24/41(58%)	2/41(4%)

cytochrome P450 78A7-like [Arachis hypogaea] (peanut)

Score	Expect	Method	Identities	Positives	Gaps
28.5 bits(62)	135	Compositional matrix adjust.	12/34(35%)	21/34(61%)	0/34(0%)

agmatine coumaroyltransferase-2 [Zea mays] (corn or maize)

Score	Expect	Method	Identities	Positives	Gaps
27.7 bits(60)	274	Compositional matrix adjust.	12/43(28%)	20/43(46%)	0/43(0%)

IRE1 [Triticum aestivum] (wheat)

Score	Expect	Method	Identities	Positives	Gaps
26.6 bits(57)	670	Compositional matrix adjust.	9/35(26%)	19/35(54%)	0/35(0%)

Human LGI1 (an autoimmune encephalitis (AE) associated self antigen(17)) vs. plant proteins

unnamed protein product [Triticum aestivum] (wheat)

Score	Expect	Method	Identities	Positives	Gaps
48.1 bits(113)	1e-04	Compositional matrix adjust.	29/84(35%)	38/84(45%)	0/84(0%)

protein NSP-INTERACTING KINASE 3-like isoform X2 [Arachis hypogaea] (peanut)

Score	Expect	Method	Identities	Positives	Gaps
42.4 bits(98)	0.010	Compositional matrix adjust.	31/81(38%)	40/81(49%)	5/81(6%)

receptor protein kinase TMK1 [Sesamum indicum] (sesame)

Score	Expect	Method	Identities	Positives	Gaps
39.3 bits(90)	0.091	Compositional matrix adjust.	24/64(38%)	35/64(54%)	1/64(1%)

probably inactive leucine-rich repeat receptor-like protein kinase At3g28040 [Glycine max] (soy)

Score	Expect	Method	Identities	Positives	Gaps
38.5 bits(88)	0.17	Compositional matrix adjust.	25/62(40%)	34/62(54%)	2/62(3%)

putative leucine-rich repeat receptor-like serine/threonine-protein kinase [Zea mays] (corn or maize)

Score	Expect	Method	Identities	Positives	Gaps
37.0 bits(84)	0.55	Compositional matrix adjust.	42/155(27%)	63/155(40%)	18/155(11%)

Human CASPR2 (An AE associated self antigen(17)) vs. plant proteins

Pectin lyase-like superfamily protein [Zea mays] (corn or maize)

Score	Expect	Method	Identities	Positives	Gaps
33.1 bits(74)	14	Compositional matrix adjust.	28/103(27%)	44/103(42%)	10/103(9%)

wall-associated receptor kinase 2-like [Arachis hypogaea] (peanut)

Score	Expect	Method	Identities	Positives	Gaps
32.3 bits(72)	31	Compositional matrix adjust.	16/34(47%)	18/34(52%)	2/34(5%)

putative E3 ubiquitin-protein ligase UBR7 [Sesamum indicum] (sesame)

Score	Expect	Method	Identities	Positives	Gaps
31.6 bits(70)	56	Compositional matrix adjust.	14/42(33%)	25/42(59%)	2/42(4%)

histone-lysine N-methyltransferase EZA1 isoform X3 [Glycine max] (soy)

Score	Expect	Method	Identities	Positives	Gaps
31.2 bits(69)	71	Compositional matrix adjust.	18/42(43%)	20/42(47%)	2/42(4%)

unnamed protein product [Triticum aestivum] (wheat)

Score	Expect	Method	Identities	Positives	Gaps
30.4 bits(67)	144	Compositional matrix adjust.	14/53(26%)	22/53(41%)	0/53(0%)

There are reports of boosted peanut, almond, milk, eggs, soy, wheat specific IgE(18,19) following vaccination. Bovine serum albumin (BSA) in equine vaccines boosted BSA IgE in horses. Repeated BSA containing vaccine injections boosted IgE resulting in severe allergy and anaphylaxis.(20) Mammalian immune systems may be the most sensitive protein detectors. Post vaccine IgE antibody synthesis can be directed against target and non-target proteins in the vaccine.(21–27) De novo synthesis of NMDAR antibodies following immunization have also been reported.(28) Given the strong sequence alignment results above, antibodies directed against plant proteins in vaccines, have a high probability of cross-reacting with human self antigens thus inducing autoimmune disorders.

Role of immunological adjuvants

The target viral/bacterial proteins (e.g.: tetanus toxoid, diphtheria toxoid, hepatitis B surface antigen, etc.) in modern vaccines are weakly immunogenic. The human immune system has evolved sophisticated checks and balances to selectively attack danger associated proteins and pathogen associated proteins while tolerating self and harmless proteins. This mechanism is the reason why harmless target proteins in vaccines are weakly immunogenic. Vaccinologists defeat the immune system's checks and balances and force an immune response directed against these weakly immunogenic target proteins, by using immunological adjuvants. The result is a robust immune response directed against target proteins which makes the vaccine effective. However, this boosted immune response is not limited to the target proteins alone. The robust immune response is also directed at non-target proteins (plant proteins in this case) thus resulting in numerous off-target immune responses.

Once immunized with food derived antigens, antigen specific IgG1 and IgG4 antibody levels can be increased by dietary exposure to those antigens thus increasing autoimmune disease severity.(9,29–33)

GR are expressed in the brain, heart, pancreas(34) and the T cells(35,36) of the immune system. Antibodies binding to a receptor could have different effects, including (i) inhibition of receptor signaling, (ii) stimulation of receptor signaling, (iii) triggering of programmed cell death, (iv) cellular cytotoxicity, (v) cell clearance by complement-mediated pathways, and (vi) receptor internalization.(37) Vaccine induced GR antibodies (GRA) therefore can disrupt GR function or destroy GR thus precipitating numerous disorders. This explains the epidemic of food intolerances and food associated immune mediated disorders.

Intestinal barrier disruption – cause or effect of autoimmunity?

Intestinal barrier disruption has been proposed as a cause for food associated autoimmune disorders. However, intestinal barrier disruption may itself be the result of vaccine-induced GRA.(38,39)

Blood brain barrier disruption

GRA can also disrupt the blood-brain barrier (BBB).(40) This provides GRA and other anti-brain antibodies access to their targets in the brain. Vaccine induced anti-GAD65 antibodies(5,41) which can cause T1D (that may be subclinical) can now also attack the brain(17) due to BBB disruption.

Neuropsychiatric disorders

Vaccine-induced GRA mediated GR dysfunction can explain a wide variety of disorders including autism(42), attention deficit hyperactivity(43,44), epilepsy(45,46), schizophrenia (47,48), autoimmune encephalitis(17,49–52), and psychosis(17,47,48,52,53).

Immune system dysregulation

NMDAR antibodies binding to T cells can result in immune system dysregulation.(54) With such fundamental impairment, increased risk of allergies, cancer (54,55), infection and autoimmune disorders can be expected.

Type 1 diabetes

Numerous antibodies are associated with T1D.(41,56,57) The islet cells of the pancreas express GR.(34,58) GRA can also therefore mediate destruction of islet cells and cause type 1 diabetes. These off-target immune responses can be both cell mediated and humoral. In the case of cell mediated responses, since the non-target proteins are injected via the skin, cytotoxic T cells produced as a result express the skin-homing marker (CCR4). Since the pancreas secrete the ligand for CCR4, these cytotoxic T cells home to the pancreas, causing type 1 diabetes.(5)

Neurodegenerative disorders

NMDA dysregulation has a role in many neurodegenerative disorders. It contributes to Parkinson's(59,60), Alzheimer's(61) dementia(52,62) and Huntington's disease(63).

Cardiac disorders

NMDAR autoimmunity can result in cardiac dysrhythmias.(64,65)

Gluten-free diet

Eosinophilic esophagitis (EoE) is an IgG4 mediated disease. The IgG4 is commonly directed against cow's milk proteins like casein. A milk-free diet reduces IgG4 level and therefore helps in EoE(66). Similarly, a milk-free diet helps in IgG4 mediated FRAA related autism.(9) By the same mechanism, a gluten-free diet can help in IgG4 mediated anti-NMDAR antibody related autism. This explains the origin of the gluten-free, casein-free (GFCF) diet in autism and ADHD treatment.

IgE and IgG4 are naturally involved in helminth defense. Injection of any protein results in IgE antibody mediated sensitization against that protein.(67)

Once sensitized, dietary exposure to the protein causes the synthesis of IgG4 antibodies directed against the same protein. The immune system is treating the protein as a worm protein.(8)
The immune system can also treat the injected protein as a virus or bacteria and begin synthesis of IgG1 antibodies directed against the protein. Dietary exposure in this case will cause an increase in IgG1 synthesis.(29)

Results above show that various elimination diets such as soy-free, sesame-free, peanut-free, corn-free may also help in these vaccine-induced illnesses. Similar to FRAA associated autism and EoE, IgG4 responses predominate in LGI1 and CASPR2 associated encephalitis.(17) Therefore, elimination diets may help.

Conclusion

Japan had an outbreak of gelatin allergy about 20 years ago. Gelatin, a non-target protein contained in vaccines caused the development of these allergies.(22) Japan removed gelatin from all vaccines around 2000, as the ultimate solution to vaccine-induced gelatin allergy.(68) We have not learned anything from the Pandemrix vaccine induced narcolepsy disaster either.(14,69,70)
The ultimate solution to avoid these numerous vaccine-induced disorders is to avoid using proteins (plant, animal, non-target viral/bacterial, fungal proteins etc.) in vaccine production. If that is not possible, all non-target proteins from all vaccines should be removed during final steps of production by using processes like affinity chromatography.(71)

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Appendix

Allergen - Certificate

817061 Tween® 80 (Polysorbate) EMPROVE® ESSENTIAL Ph Eur,JP,NF

List of Allergens

Milk and products thereof (including lactose)
Chicken
Beef
Fish and products thereof
Crustaceans and products thereof
Rye
Soybeans and products thereof
Nuts and products thereof
Peanuts and products thereof
Sesame seeds and products thereof
Legumes/pulses
Cinnamon
Coriander
Umbelliferae
Mustard and products thereof
Azo dyes
Sulfur dioxide, Sulphites
Parabenes (E211-E219)

Lactose
Eggs and products thereof
Pork
Molluscs and products thereof
Yeast
Gluten
Soy oil
Nut oil
Peanut oil
Sesame oil
Lupines and products thereof
Vanillin
Celery and products thereof
Cocoa
Glutamate
Tartrazine (E102)
Benzoic Acid (E210)
Natural Rubber Latex

Because of the used raw materials and/or the manufacturing procedure we do not expect the listed allergens in the final product.

The following materials are used as raw material but are not present in the final product:

Maize, Wheat

We point out that Merck KGaA does not perform any testing on allergens in the above-mentioned product.

Dr. Jörg Schröder

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