

Autism and Diet

1. must be possible
2. treatment must give tangible results

Effect of enzyme defect

↓ Rate limiting enzyme



↑ feedback _____ ↓



e2 defective enzyme.

Genetics

Genetic base

Bailey A, Le Coteur A ,
Gottesman I , Bolton P, Sionoff
E, Yuzda E and Rutter M
(1995)

Autism is a strongly genetic
disorder: evidence from a
British twin study. Psychol
Med 25: 63-77

UPTAKE OF INTACT PROTEINS

PASSAGE OF UNDEGRADED DIETARY ANTIGEN INTO THE BLOOD

Walker WA. et al (1974) Gastroenterology 67:531-550

Bloch KJ. et al (1979) Gastroenterology 77:1039-1044

Husby S. et al (1985) Scand J Immunol 22:83-92

Husby S. et al (1986) Scand J Immunol 24:147-155

INTACT OR ONLY PARTIALLY DEGRADED PROTEINS INTO THE BLOOD

Swarbrick ET. et al (1979) Gut 20:121-125

Uptake of active enzymes

Botulinum toxin

Tetanus toxin

Prions: conformation inducing

Intact proteins in milk

Kilshaw PF and Cant AJ (1984)

Int Arch Allergy Appl Immunol 75:8-15

Stuart I, Twiselton R, Nicholas M and Hide DW
(1984)

Clin Allergy 14:533-535

Axelsson I, Jacobsen I, Lindberg T and
Benediktsson B (1984)

Acta Paed Scand 75:702-707

SHOW: BOVINE BETA-LACTOGLOBULIN,
CASEIN

AND GLIADIN IN MOTHERS MILK BY
SPECIFIC ANTIBODIES

Uptake of peptides

GARDNER MLG (1983) BIOCHEM SOC
TRANS 11:810-812

ALPERS DH (1986) FED
PROC 45:261-267

WEBB KE (1986) FED PROC
45:2268-2271

TAKAORI K et al (1986) B.B.RES
COMM 137:602-607

CHABANCE B et al (1998)
BIOCHIMIE 80:155-165

INCREASED BY PEPTIDASE INHIBITION

MAHE S et al (1989)
PEPTIDES 10:45-52

Gut problems in autism

D'Euphemia et al (96) Acta Paed.
85:1076-79

Torrente F et al (04) Am J
Gastroenterol 99: 598-605

Horvath K and Perlman JA(02)
Current Gastroenterol. Reports 4:
251-258

Wakefield AJ et al (02) Aliment

PharmacolTher.16: 663-674

Torrente F et al (02) Mol.Psdychiat

7: 375-382

Ashwood P et al (03) J Clin Immunol

23: 504-517

Inflammatory cytokine release

Jyonouchi H et al (2002)

Neuropsychobiology 46: 76

Croonenberghs J et al (2002)

Neuropsychobiology 45: 1-6

Ashwood P et al (2004) J Clin

Immunol24: 664-673

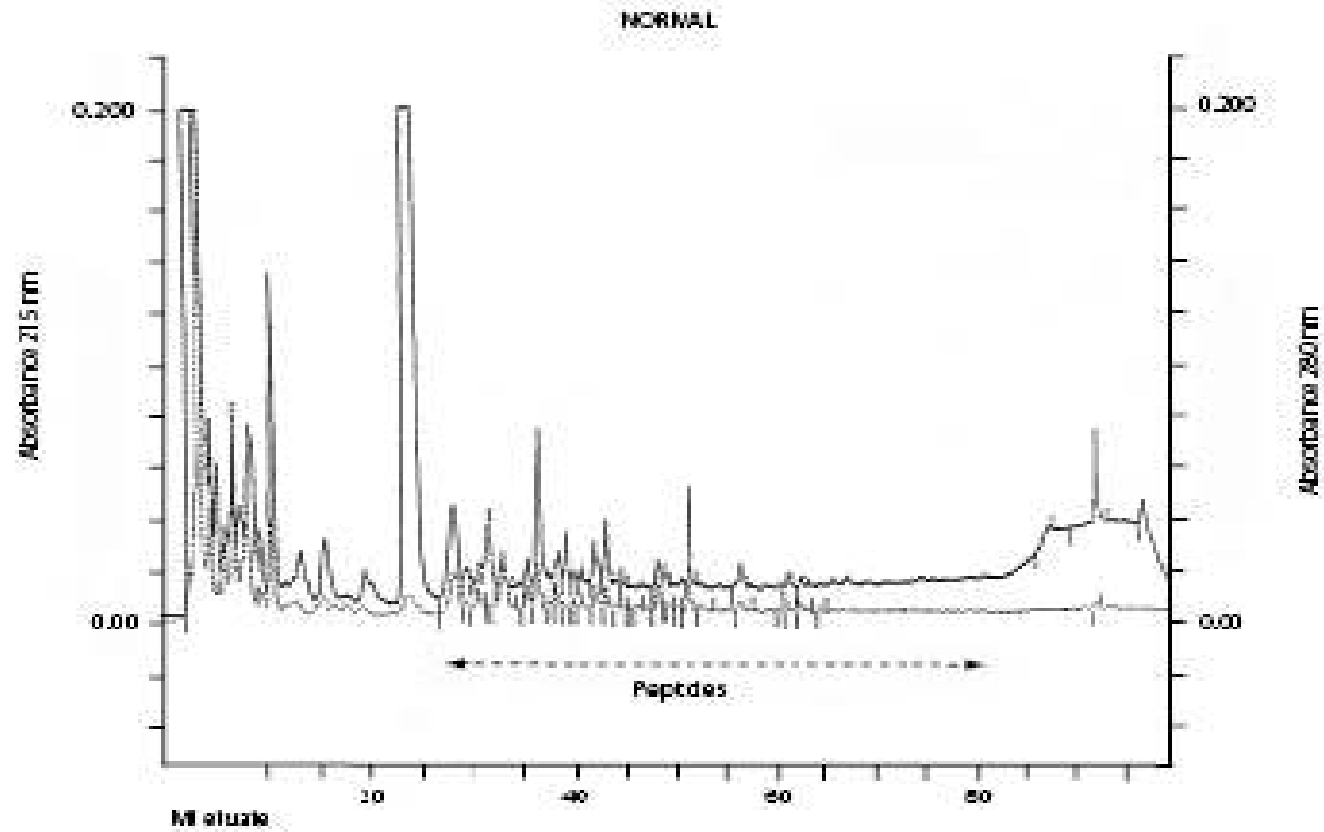
Jyonouchi H et al (2005) Neuro-

psychobiology 51: 77-85

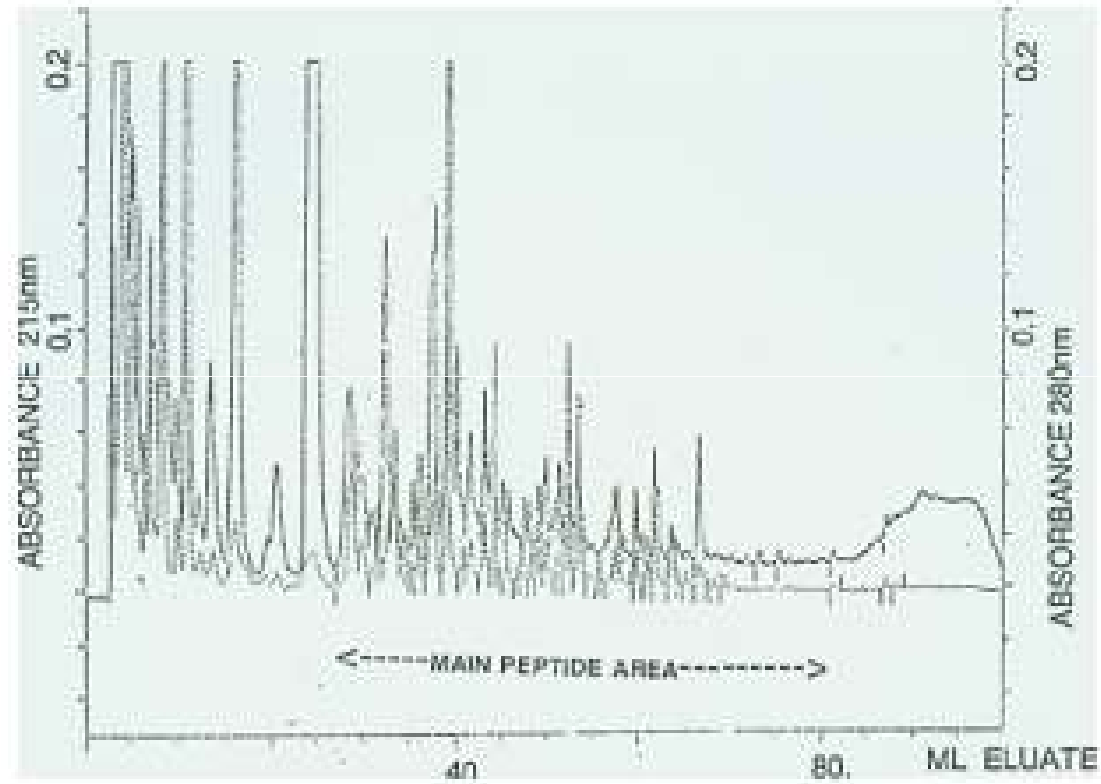
IBD and postprandial CNS lesions

1. Geissler A et al (1995) Focal white matter lesions in brain of patients with inflammatory bowel disease. Lancet 345: 897-898
2. Hart PE et al (1998) Brain white matter lesions in inflammatory bowel disease. Lancet 351: 1558

Normal pattern



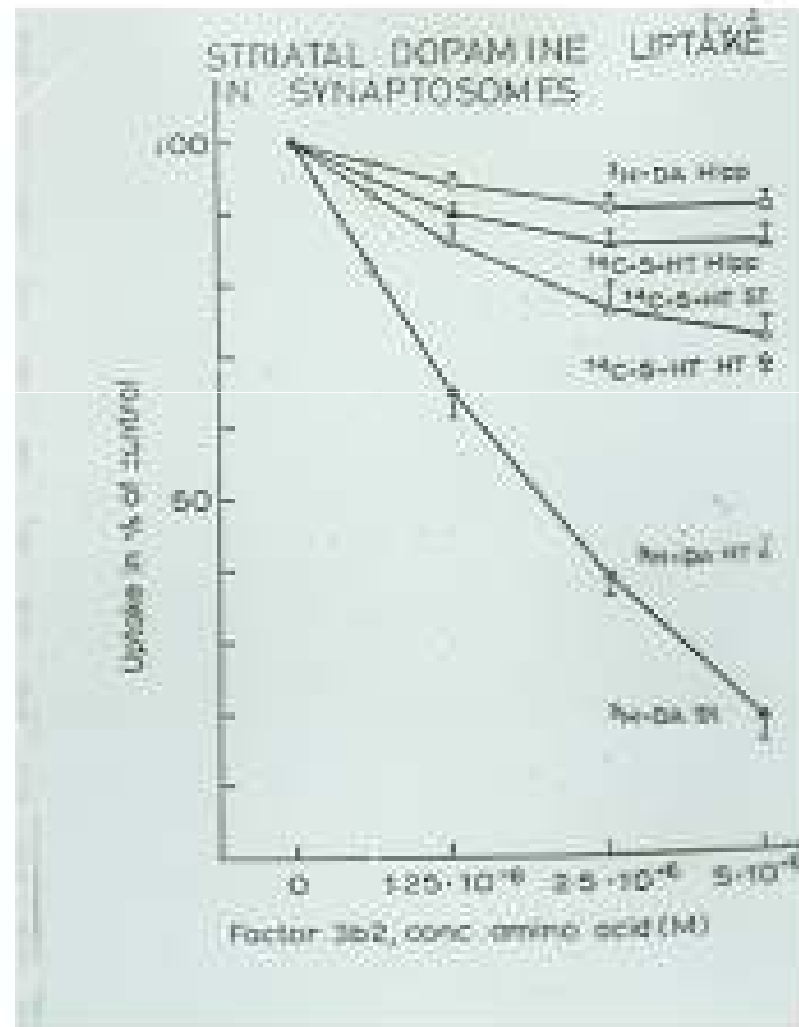
Infantile Autist



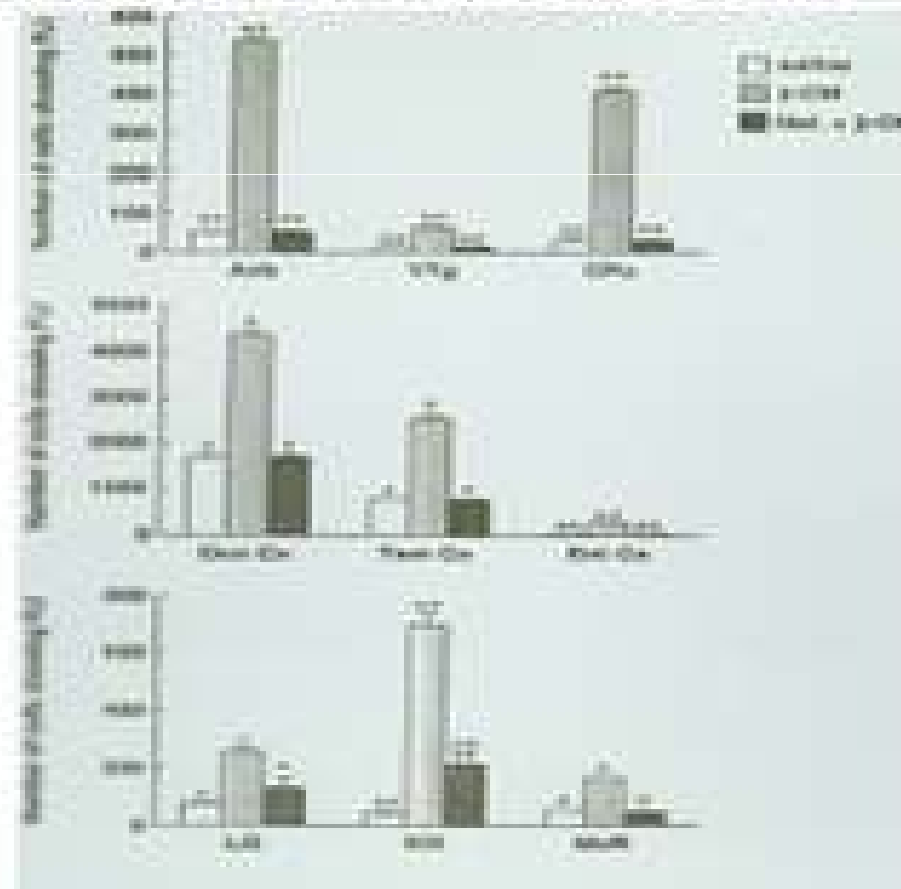
Peptide levels in different countries

• Country	Italy	Serb.	Slo.	Cont
• Mean	403	584	564	289
• SD	307	504	523	84
• N	145	139	51	181
• P <	0.001,0.001,0.005			

Dopamine uptake

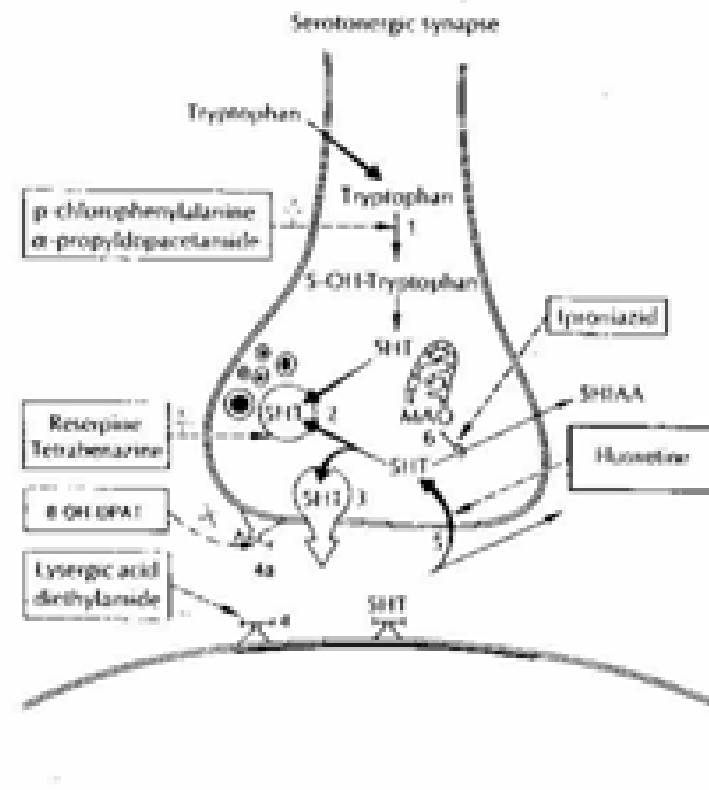


INDUCTION OF FOS ANTIGEN ANTIGEN

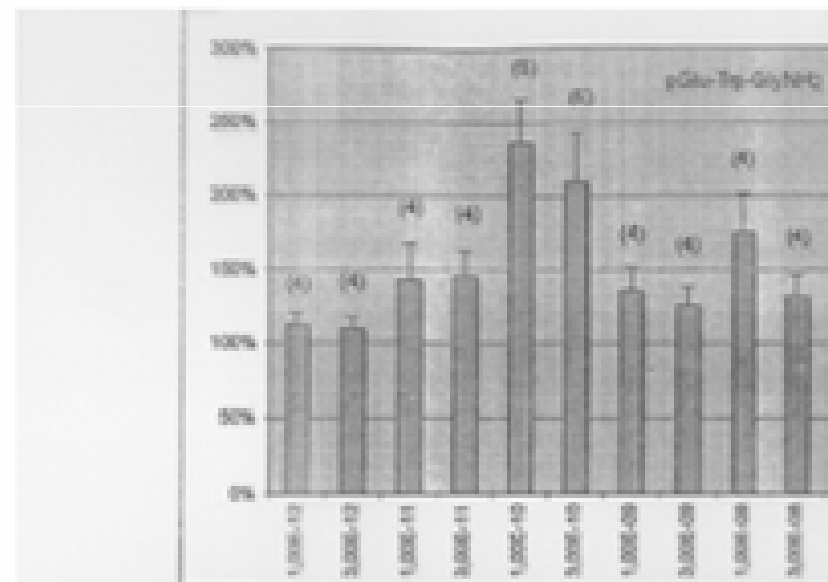


The serotonergic synapse

366 | The Biochemical Basis of Neuropharmacology



5-HT UPTAKE IN TRANSFECTED OOCYTES



- Knivsberg A.-M et al (1995) Scand J Educat.
•Research 39: 223-236 (4 years)
- Lucarelli S(1995) Panminerva Ned . 37:
•137-141
- Whiteley P et al (1999) Autism 3: 45-65
- Cade RJ et al (2000)Nutritional Neuroscience
•2:57-72
- Knivsberg A-M et al (2002) Nutritional
• Neuroscience5: 251-261
-

1. KLaveness J & Bigam J (2002) The
GFCF kids diet sKlurvey .Building
Bridges, Univ, Durham Meet. pp77-84

2. Kniker TW et al (2001) 2001:an
autism odyssey (Univ Durham Meet)
pp183-191

3 Autism Res Inst. San Diego: (2003)
ARI publ 34

Thesis taken on diet.

- 4, Slimak KM(2008)<http://www.Immuneweb.org/articles/slimak.htm>
- 5. Pennesi CM (2009)
Autismdietsurvey@psu.edu

TAFJORD TEST SCHEME

PERCENT CHANGE IN THE TAFJORD
OBSERVATION SCHEME OF PLAY AND
ACTIVITY AFTER 1 YEAR (N=15).

SOCIAL REL.	LANGUAGE	STRUC- TURAL	SENSORY MOTOR
+22.8	+16	+12.2	+9
WILCOXON PAIRED RANKING TEST			
T=0	T=0	T=0	T=0
P=0.005	P=0.005	P=0.005	P=0.005

REFERENCE: KNIVSBERG A-M (1985) BRAIN
DYSFUNCTION 3: 315-327.

RAVEN :BOYS



Illinois psycholinguistic ability

N= 10 over four years .

START SCORE	END SCORE	P
26.09(± 6)	32.18(± 4.94)	0.001

Random pairwise GF/CF

Aim: to evaluate effect of gluten and casein free diet

Design: a single blind controlled study

Method: 20 participants with autistic syndromes
and urinary peptide abnormalities

diet group control group

age (n=10): x = 7.6 years (SD 1.8) x = 7.2 years (SD 1.9)

autistic traits (n=10): x = 12.5 (SD 2.2) x = 11.5 (SD 3.9)

nonverbal IQ (n=9): x = 81.0 (SD 36.0) x = 84.6 (SD 36.8)

Tabell 2. Totalt peptid nivå etter hippursyre målt i samme pasient før og etter 2 år på diett

Sum of UV215 absorbing peaks before and after diet

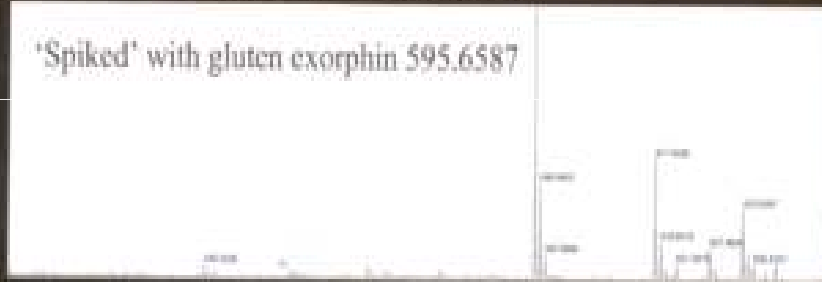
Effect of diet

	Total before	Total after	Autism peak before	Autism peak after
Mean	425	204	48	26
SD	299	112	24	13
N	108	108	107	107
p	<0.0001		>0.0002	

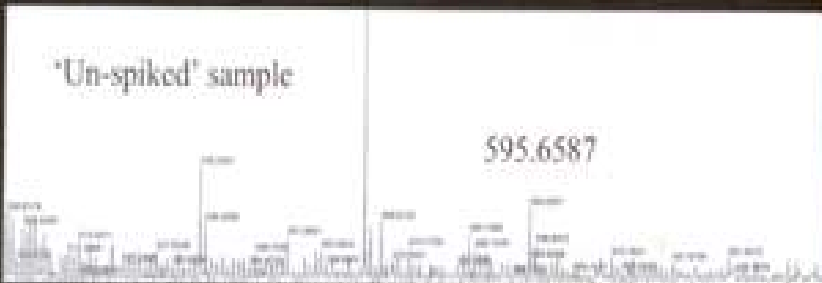
Spiked glumorphine B5

Samples can be 'spiked' internally with defined peptides and masses compared to 'confirm' identity

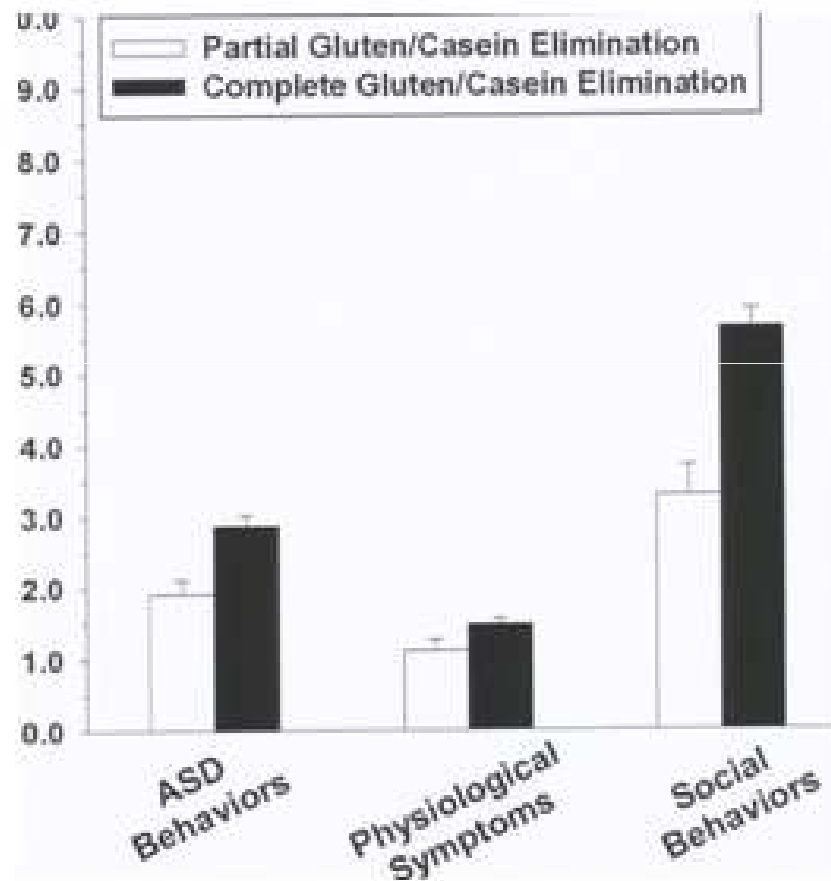
'Spiked' with gluten exorphin 595.6587



'Un-spiked' sample



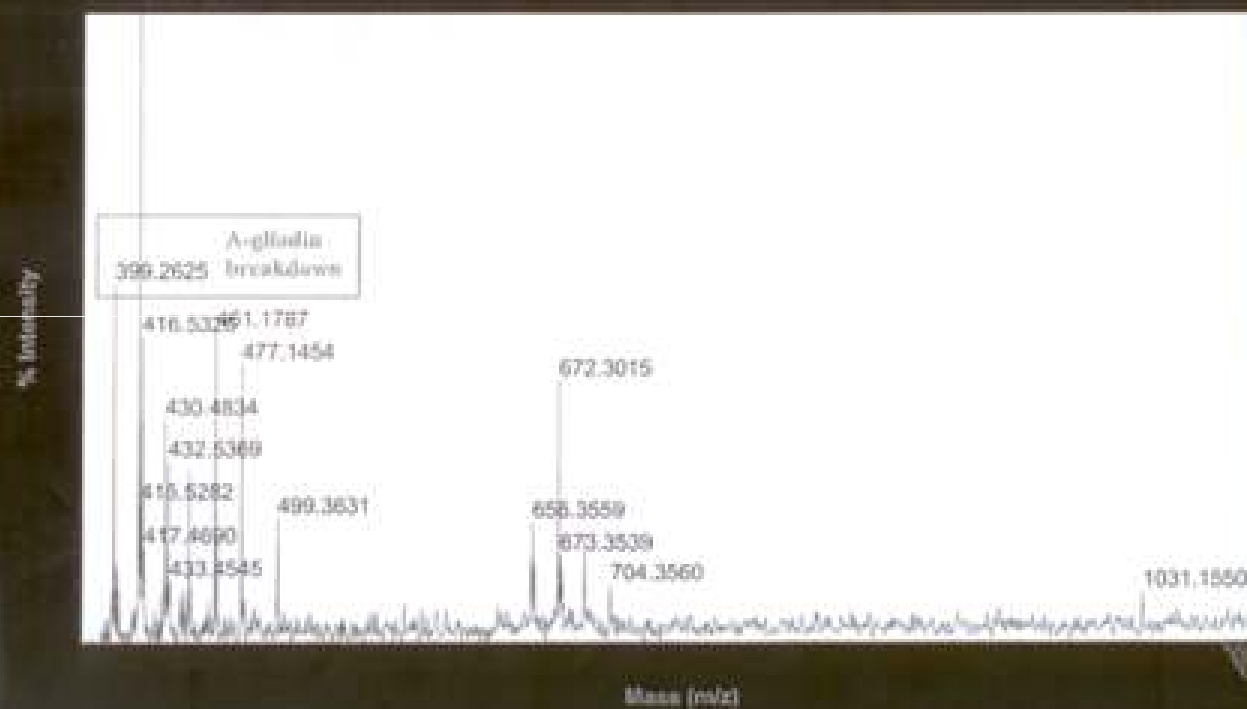
Partial diet no good



Fennesi: Penn State Univ.

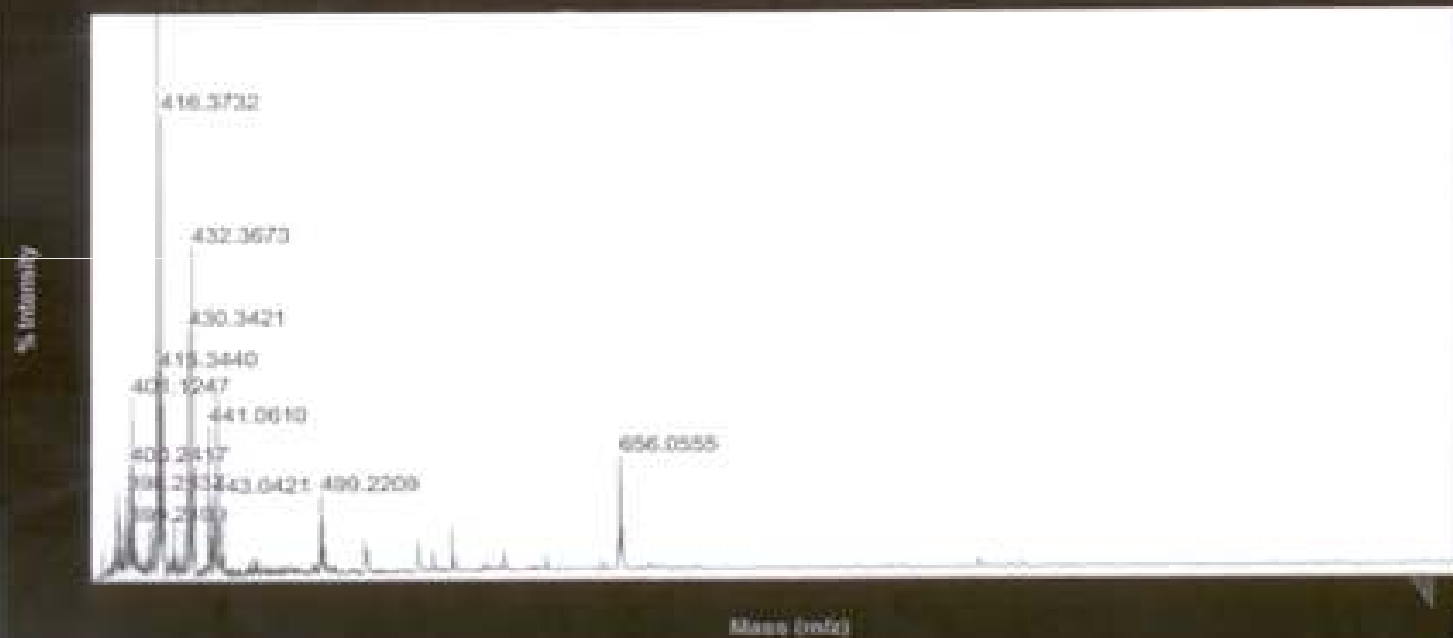
Autistic unrestricted diet

Voyager Spec #1=>BC=>NF0.7=>MC=>BC[BP = 414.5, 4338]



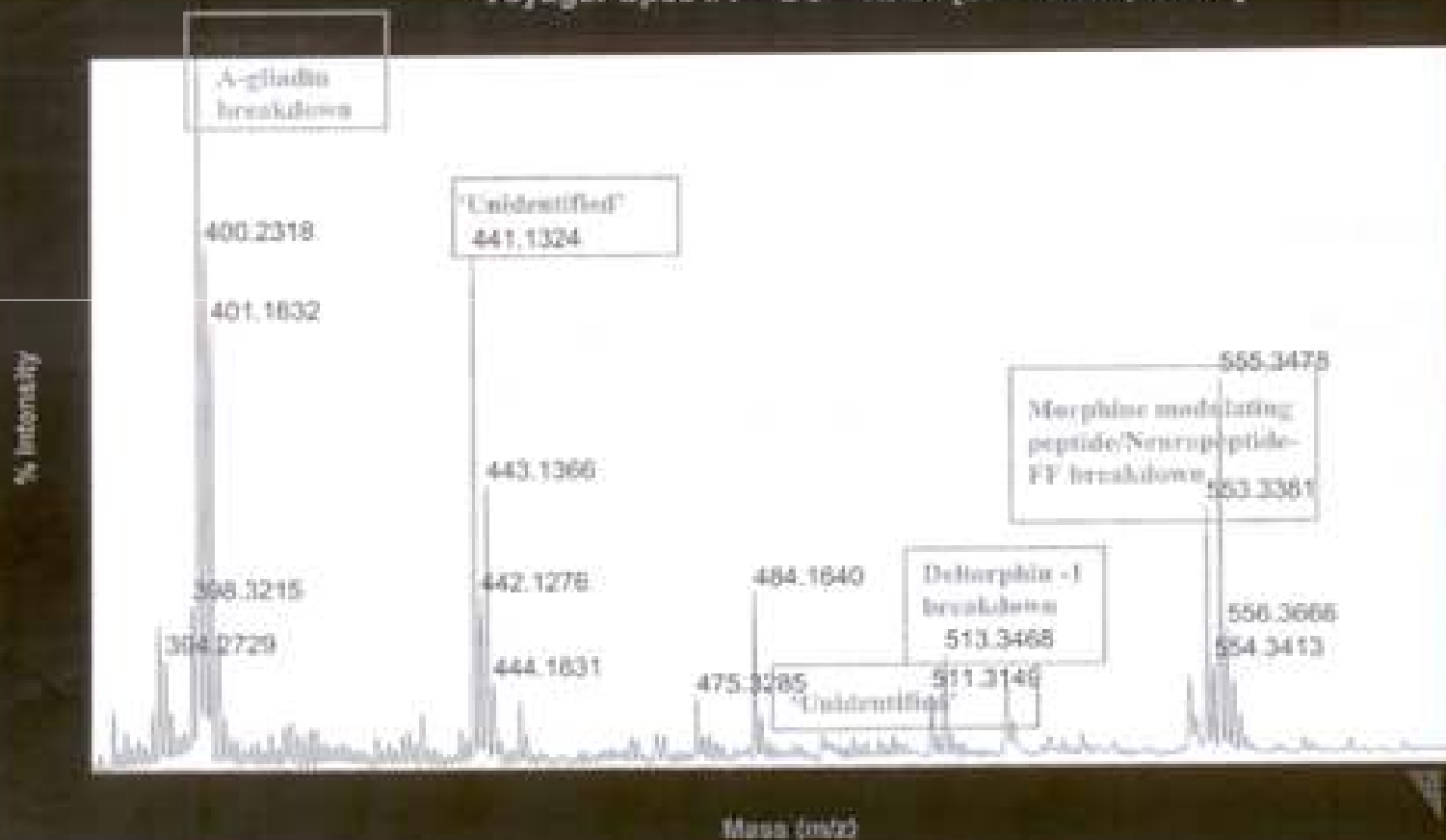
Non-autistic control

Voyager Spec #1=>BC=>NF0.7[BP = 414.3, 20213]



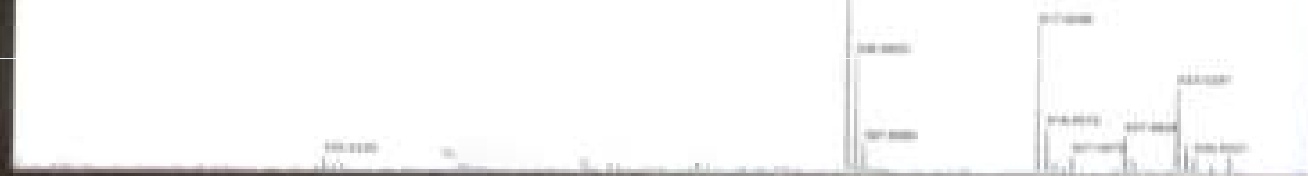
Autistic 2 days gluten challenge

Voyager Spec #1=>BC=>NF0.7[BP = 399.2; 53537]



Samples can be 'spiked' internally with defined peptides and masses compared to 'confirm' identity

'Spiked' with gluten exorphin 595.6587



'Un-spiked' sample

