Chapter 3

Endosymbiotic Pathogenic Archaea in Chronic Diseases and Treatment with High Fibre, High Medium Chain Triglyceride and High Legume Protein Paleo Organic Ketogenic Food - Change from H. Neanderthalis to H. SAPIENS Phenotype

This invention relates to a method for detection of endosymbiotic archaea and digoxin synthesis. A new therapeutic formulation for modulation of endosymbiotic archaeal growth and endogenous digoxin synthesis in the treatment of metabolic syndrome X, strokes, CAD, hyperlipidemia, diabetes mellitus, autoimmune, neuropsychiatric, neurodegenerative, cancer and infections is described.

The research work carried out by us over a period of years showed that patients of these disorders mentioned show:

1. Decrease in the activity of a cell membrane based enzyme known as sodium-potassium ATPase. An inhibition of sodium-potassium ATPase produces increase in intracellular calcium and decrease in intracellular magnesium.
2. Membrane sodium-potassium ATPase inhibition is produced by endogenous digoxin which is synthesized from cholesterol by actinidic archaea which acts as endosymbionts in cell. The archaea synthesizes digoxin from cholesterol.
3. Actinidic archaeal growth has been detected in metabolic syndrome X, coronary artery diseases, strokes, diabetes mellitus, hyperlipidemia, autoimmune, neuropsychiatric, neurodegenerative, cancer and infections
4. Lauric acid, Curcuma longa, Emblica officinalis are antiarchaeal agents. Lauric acid, Curcuma longa, ragi (eleusine coracana), magnesium and Emblica officinalis block the archaeal mevalonate pathway. This decreases digoxin synthesis from cholesterol and treats these chronic disorders.

Detection of Endogenous Actinidic Archaea

Endogenous actinidic archaea have been detected in metabolic syndrome X, diabetes mellitus, CAD, stroke, autism, autoimmune, neuropsychiatric, neurodegenerative, cancer and infections. The archaea are detected by spectrophotometry for cytochrome F420, the methanogenic cytochrome in the blood. The endogenous actinidic archaea synthesizes cholesterol by the mevalonate pathway. The cholesterol is catabolized to digoxin. Digoxin inhibits membrane sodium-potassium ATPase and increases intracellular calcium and depletes magnesium stores in the cell. This leads to metabolic syndrome X, diabetes mellitus, CAD, stroke, autism, autoimmune, neuropsychiatric, neurodegenerative, cancer and infections. The synthesis of digoxin can be demonstrated in patients by adding cholesterol substrate and cerium to patient's serum and checking for the rise in cytochrome F420 activity and digoxin levels. Digoxin levels are assayed by Elisa and cytochrome F420 by spectrophotometry. The test is available in the Metabolic Disorders Centre. The patient in whom endogenous archaea and digoxin synthesis is demonstrated is given nutritional dietary supplements to modulate the effects of archaea and digoxin. This helps to ameliorate the chronic diseases like metabolic syndrome X, diabetes mellitus, CAD, stroke, autism, autoimmune, neuropsychiatric, neurodegenerative, cancer and infections.

Symbiosis and Evolution

Symbiosis by microorganisms especially archaea drives the evolution of the species. In such a case symbiosis can be induced by transfer of microflora symbionts and evolution induced. Endosymbiosis by archaea as well as archaeal symbionts in the gut can modulate the genotype, the phenotype, the social class and the racial group of the individual. The symbiotic archaea can have horizontal and vertical transmission. Endosymbiotic archaeal growth leads to

neanderthalisation of the species. The neanderthalised species is matrilineal society and includes the Dravidians, the Celts, the Basques and the Berbers. The inhibition of the endosymbiotic archaeal growth leads to evolution of the homo sapiens. This includes the Africans, Aryan invaders of North India and the Aryan derived European population. Symbiosis mediated evolution depends on the gut flora and the diet. This has been demonstrated in the drosophila pseudoobscura. The drosophila mates only with other individuals eating the same diet. When the drosophila gut microflora is altered by feeding antibiotics they mate with other individuals eating different diets. The diet consumed by the drosophila regulates its gut microflora and mating habits. The combination of the human genome and the symbiotic microbial genome is called the hologenome. The hologenome especially its symbiotic microbial component drives human evolution as well as animal evolution. The evolutionary distance between species of wasp depends on the gut microflora. The human gut microflora regulates the endocrine, genetic and neuronal systems. Humans and primate evolution depends on endosymbiotic archaea and gut microflora. The endosymbiotic archaeal growth determines the racial differences between the matrilineal Harappan / Dravidian societies and the patriarchal Aryan society. The matrilineal Harappan / Dravidian society was neanderthalic and had increased endosymbiotic archaeal growth. Endosymbiotic archaeal growth and neanderthalisation can lead to autoimmune disease, metabolic syndrome X, neurodegeneration, cancer, autism and schizophrenia. The Neanderthal gut flora and endosymbiotic archaea was determined by the non vegetarian ketogenic high fat high protein diet consumed by them in the Eurasian steppes. The homo sapiens including the classical Aryan tribes and African ate a high fibre diet and had lower archaeal growth both endosymbiotic and gut. The dietary fibre intake determines the microbial diversity of the gut. The high fibre intake is associated with increased generation of short chain fatty acids - butyric acid by the gut

flora. Butyrate is a HDAC inhibitor and leads to increased generation and incorporation of endogenous retroviral sequences. The high dietary fibre intake related increased HERV sequences leads to increased synaptic connectivity and a dominant frontal cortex as seen in homo sapien species. The neanderthalic species consume a ketogenic non vegetarian high fat high protein low fibre diet. This leads to decreased generation of endogenous HERV sequences and reduced genomic flexibility in neanderthalic species. This produces smaller cerebral cortex and a dominant cerebellar cortex in the neanderthalic brain. The homo neanderthalic species by the low dietary fibre intake starve their microbial self. This leads to increased endosymbiotic and gut archaeal growth. The mucous membrane lining the gut becomes thinned out as the gut bacteria eats up the mucous lining of the gut. This results in leakage of endotoxin and archaea from the gut to the blood breaching the barrier and produces a chronic immunostimulatory inflammatory state which forms the basis of autoimmune disease, metabolic syndrome, neurodegeneration, oncogenic and psychiatric disorders. The Neanderthal species eat a low fibre diet and have a deficiency of microbiota accessed carbohydrate generating short chain fatty acid. There is a deficiency of butyrate generated in the gut from the dietary fibre which can produce suppression of the chronic inflammatory process. The Neanderthals have got the fermentation by-product deficiency syndrome. The induction of neanderthalic species depends on the low fibre intake induced high archaeal density endosymbiotic and the gut microflora. The homo sapiens species consume a high fibre diet generating large amounts of short chain fatty acid butyrate which inhibits endosymbiotic and gut archaeal growth. The microbial self of the homo sapien species is more diverse than that of the neanderthalic species and the archaeal population density is less. This results in a protection against chronic inflammation and the induction of diseases like autoimmune disease, metabolic syndrome, neurodegeneration, oncogenic and psychiatric

disorders. The homo sapien species have a higher intake of dietary fibre contributing to around 40 g/day and a diverse microbial gut flora with less of archaeal population density. The butyrate generated from dietary fibre produces an immunosuppressive state. Thus the symbiotic microflora with less of archaeal density induces a homo sapien species. This can be demonstrated by experimental induction of evolution. A high fibre high MCT diet as well as antibiotics derived from higher plants and fecal microbiota transfer from sapien species can inhibit the Neanderthal metabolonomics and phenotype and induce the evolution of homo sapiens. A low fibre high fat high protein diet as well as fecal microbiota transfer from the Neanderthal species can produce Neanderthal metabolonomics and phenotype inducing the evolution of homo neanderthalis. Transfer of colonic microflora predominantly archaea and modulation of endosymbiotic archaea by a paleo diet and antibiotics from higher plants can lead to interconversion of human species between homo neanderthalis and homo sapiens. The hologenome especially the microbial flora endosymbiotic/gut drives human and animal evolution and can be experimentally induced. Symbiotic microflora drives evolution. Every animal, every human species, different communities, different races and different caste have their signature endosymbiotic and gut microflora which can be transmitted vertically and horizontally. Thus symbiosis drives human and animal evolution. The colonic and endosymbiotic archaea and other microbes like clostridial clusters determine the species, race, caste, community and personal identity of the individual. The identity of the individual - personal, community, caste, race, nationality and species is determined by the colonic and endosymbiotic archaeal and clostridial clusters. Predominent archaeal symbiosis produces homo neanderthalis and less prominent archaeal symbiosis and dominant clostridial clusters in the gut produces the homo sapien species. Each individual, race, nationality, caste, creed and community have the endosymbiotic and colonic

microbiota signature. This colonic and endosymbiotic microbiota signature is transferable by the change of endosymbiotic and colonic microbiota from one group to another. Thus the evolution and identity based on individuality, race, nationality, caste and creed can be induced.

Preparation and Formulation

This invention relates to a formulation which will act as a therapeutic agent for various diseases. (1) Metabolic syndrome X with diabetes mellitus and vascular disease, (2) Autoimmune, (3) Neuropsychiatric, (4) Neurodegenerative, (5) Cancer, and (6) Infections

There is so far no 100% effective treatment for the management of these disorders and drugs used in medicine produce undesirable side effects.

Therefore there is a need to develop a safe and effective formulation which can be used to ameliorate the disorders and conditions mentioned above.

Research work carried out by us over a period of years has shown patients have this disorders or condition show a significant improvement on the following combination when endogenous archaeal growth and digoxin synthesis is demonstrated in the patients. (1) Curcuma longa, (2) Emblica officinalis, (3) Magnesium oxide, (4) Butyric acid, (5) Lauric acid, and (6) Ragi (Eleusine coracana).

Each of the substance has some effect in one or more disorders. However, it is only the combination that shows full effect.

Method of Preparation of Extract for Formulation

The individual materials were frozen dried and powdered to get 100-200 micron size. Then they were mixed at a concentration of 15 g each and

made up to 100 g with 25 g of deskinned ragi powder. They were then mixed thoroughly and biscuits were made, 10 biscuits. Each patient was administered 2 biscuits daily. They were assessed before treatment was started by clinical examination and lab investigations. The duration of the treatment ranged from 6 months to 2 years. We found that in the case, the tried formulation showed significant curative effects. None of the substance used or information used in combination as described above for the purpose described to use have been used before.

Preparation of the Formulation

The following formulation in the concentration mentioned was made.

1. Dry extract of Curcuma longa - A
2. Dry extract of Emblica officinalis - B
3. Magnesium oxide (IP grade) - C
4. Butyric acid - D
5. Lauric acid - E
6. Ragi power - F

The concentration of each is as follows: A - 15 g, B - 15 g, C - 15 g, D - 15 g, E - 15 g and F - 25 g. Components A, B, C, D, E and F were mixed to form the biscuit.

Example 1: Clinical trials

We carried out clinical trials with this formulation in patients with (1) Primary generalized epilepsy, (2) Schizophrenia, (3) Parkinson's disease, (4) Multiple sclerosis, (5) Refractory CNS glioblastomas, (6) Neuronal aging and dementia of the Alzheimer's type, (7) Down's syndrome, (8) Acquired

immunodeficiency syndrome, (9) Autism, (10) CAD, (11) Stroke, (12) Diabetes mellitus, and (13) Aging.

Each patient was administered 2 biscuits of the formulation daily. The patients were assessed before treatment was started clinically and by all required laboratory investigations. The duration of treatment ranged from 6 months to 2 years. Their condition was assessed during treatment and after treatment clinically and using all necessary laboratory investigations.

We found that in the cases tried, the formulation showed significant curative effect. None of the substances mentioned in the formulation has been used before either singly or in combination as described above for the purpose for which they are described to be used. The invention will now be illustrated with reference to the following typical examples.

1. *Refractory epilepsy*

Male aged 25 years with primary generalized epilepsy. This patient was refractory to treatment and was on a combination of carbamazepine -1200 mg/day, sodium valproate - 1200 mg/day and dilantin sodium 800 mg/day. The seizure frequency at the start of therapy was 12 episodes/day. Our formulation I was started with the dose of carbamazepine, sodium valproate and dilantin sodium reduced to half the respective dose in the first month and $1/4^{th}$ respective dose in the second month and withdrawn from the third month onwards. The treatment duration was one year. At the end of one year, the seizure frequency reduced to 2 per month. There were no side effects noticed.

2. *Refractory schizophrenia*

Female aged 38 years with refractory schizophrenia of 3 years duration. The patient was on risperidone - 9 mg/day and clozapine - 75 mg/day. Our formulation I was started and the doses of risperidone and clozapine reduced to

half the respective dose for one month, ¼ the respective dose for second month and completely withdrawn from third month onwards. The duration of the treatment was one year. The scoring values at the start and end of therapy were as follows:

Score		
Pre-therapy	Post-therapy	
A1 - Delusion	3	1
A2 - Hallucination	3	0
A3 - Disorganised speech	3	0
A4 - Disorganised thought	3	1
A5 - Alogia, avolition, affective flattening	3	1
Pre-therapy	Post-therapy	
B - Interpersonal relation	1	0
Work	1	0
Education	1	0
Self-care	1	0
Total	16	3

3. Refractory Parkinson's disease

Male aged 70 years with idiopathic Parkinson's disease. He was on syndopa (L-dopa + Carbidopa - 2000 mg/day, Bromocryptine - 7.5 mg/day and pacitane - 12 mg/day). Our formulation I was started with syndopa, bromocryptine and pacitine reduced to half the respective dose in the first month, and ¼ of the respective dose in the second month. These drugs were withdrawn from third month onwards. Duration of the treatment was one year. The UPDRS ratings scales were used which has the following parameters: (1) Mentation / behavior / mood, (2) Activities in daily living, (3) Motor examination, and (4) Complication of therapy.

I	II	III	IV	Total	
Pre-therapy score	5	14	15	12	46
Post-therapy score	1	2	5	1	9

Based on UPDRS scales, the patient showed significant improvement. No side effects were noticed during treatment.

4. Refractory multiple sclerosis

Female aged 22 years diagnosed as having multiple sclerosis based on Poser's criteria. The patient was on routine immunosuppressive therapy with prednisolone - 60 mg/day and azathioprine -100 mg/day. She was put on our formulation I with the respective doses of prednisolone and azathioprine reduced to half the respective dose in the second month and totally withdrawn from the fourth month onwards. The duration of the treatment was two years.

The parameters before starting therapy were, (1) Relapse rate - 6 relapses/year, (2) Activity of daily living scale - cannot carry out the activities of daily living and was bed ridden - grade IV, and (3) MRI scan with gadolinium contrast showed active lesions.

The parameters after therapy for three years were, (1) Relapse rate - 0 per year. No relapses were noticed, (2) Activity of daily living scale - could perform activities of daily living without help, and (3) MRI scan with gadolinium contrast repeated at 6^{th} month, 1 year, 1½ years, 2 years, 2½ years and 3 years showed no active lesion.

5. Refractory CNS glioblastoma

Male aged 43 years old with massive left frontoparietal glioblastoma with midline shift. The patient had already undergone the routine radiotherapy and taken the chemotherapy course. He was put on our formulation I. The duration of the treatment was 5 years.

After 2 years treatment repeat MRI scans showed a 60% quantitative reduction in tumour size. After 4 years of treatment repeat MRI scans showed a further 25% (total of 85% from initial size) reduction in tumours size.

Before starting treatment based on his clinical and MRI findings he was prognosticated to have a 3 months survival. After treatment with the formulation he had a 4 year survival.

6. Acquired immunodeficiency syndrome

Male aged 26 years diagnosed as having acquired immunodeficiency syndrome. He was positive for HIV by both elisa and western blot. He had generalized lymphadenopathy and hepatosplenomegaly. His weight was 52 kg. The initial CD_4 count was 110 cells/cumm.

He was put on our formulation I. The treatment duration was one year.

After 6 months of therapy the CD4 count increased to 400 cells/cumm. and after one year of therapy to 500 cells/cumm.

The weight increased to 65 kg. His lymphadenopathy and hepatosplenomegaly had regressed. The formulation was effective in his case.

7. Syndrome X with diabetes mellitus, CAD and stroke

Female aged 49 years with freshly diagnosed non-insulin dependent diabetes mellitus, obesity, hypertension, hypertriglyceridemia, unstable angina and recurrent episodes of TIA.

She was put on formulation I. The duration of treatment was one year. Parameters before starting treatment were as follows:

1. Fasting blood sugar - 186 mg%
2. Post prandial blood sugar - 420 mg%

3. Serum triglycerides - 600 mg%
4. Episodes of unstable angina - 6/month
5. ECG showed inferolateral ischaemia
6. Episodes of transient ischaemic attack of the MCA territory - 3/year
7. Weight of the patient - 85 kg
8. Insulin requirement - was on 45 units of lente insulin daily

The treatment duration was 2 years. Parameters after starting treatment were as follows:

1. Fasting blood sugar - 96 mg%
2. Post prandial blood sugar - 142 mg%
3. Serum triglycerides - 120 mg%
4. Episodes of unstable angina - nil/month
5. ECG showed no changes
6. Episodes of transient ischaemic attack of the MCA territory - nil/year
7. Weight of the patient - 60 kg
8. Insulin requirement - was halved to 25 units of lente insulin daily in the first month, 15 units of lente insulin daily in the second month and withdrawn totally by the third month.

There were no side effects for treatment.

8. Neuronal aging and dementia of the Alzheimer's type

Male aged 82 years diagnosed as having Alzheimer's disease by NINDS criteria. The mini-mental status examination before therapy gave a score of 6. He was dependent on others for his activities of daily living.

He was put on our formulation I. The duration of treatment was 2 years.

The mini-mental status examination score at the end of 2 years of treatment was 26. He was independent with regard to the activities of daily living. The treatment was without any side effects.

9. Down's syndrome - trisomy 21

Male aged 12 years had severe mental retardation with a diagnosis of trisomy 21. His IQ assessment gave a value of 20 before therapy.

The patient was put on this formulation I for 2 years.

The IQ assessment at the end of the therapy gave a value of 55. There were no side effects for the therapy.

10.Autistic spectrum disorder

Male patient 5 years with autistic spectrum disorder. Patient was given the formulation for one year. The cognitive scores, the emotional quotient, communication and speech showed significant improvement. Each of these parameters was given a score of 2. Pretreatment the score was 1. Posttreatment the score became 4.

Patient Population Included in the Large Scale Trial

These are typical examples of a large number of patients tried in each case. The number of patients included in the trial is as follows:

1. Primary generalized epilepsy - 25 patients.
2. Schizophrenia - 25 patients.
3. Parkinson's disease - 25 patients.
4. Multiple sclerosis - 20 patients.

5. Refractory CNS glioblastoma - 10 patients
6. Diabetes mellitus - 50 patients
7. Neuronal aging and dementia of the Alzheimer's type - 25 patients
8. Down's syndrome - 10 patients
9. Acquired immunodeficiency syndrome - 15 patients
10. Autism - 25 patients
11. CAD - 50 patients
12. Stroke - 50 patients
13. Lupus syndrome - 25 patients