Chapter 17

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 and a new paleo high fibre, high medium chain triglyceride, high legume protein ketogenic diet 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. High fibre and high medium chain triglyceride ketogenic diet are anti-archaeal agents. High fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis can 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 catabolised 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 high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet 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. Predominant 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 has 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 high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet 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 High fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis paleo ketogenic diet 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) Powdered Moringa pterygosperma, (4) Whole coconut powder, (5) Powdered black gram, and (6) Powdered dried ash gourd.

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 Paleo Ketogenic Diet and Effect of Administration

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

1. 10 g of Curcuma longa - A
2. 10 g of Emblica officinalis - B
3. 100 g of whole coconut powder - C
4. 100 g of dried Moringa pterysperma leaves - D
5. 100 g of Powdered dried black gram - E
6. 100 g of Powdered dried ash gourd - F

Components A, B, C, D, E and F were mixed to form a packet of 420 g. They were then mixed thoroughly and made into 420 g packet. 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 tried high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis 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.

Example 1

We carried out self-dietary intervention with this high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis in patients with: (1) Primary generalized epilepsy, (2) Schizophrenia, (3) Parkinson's disease, (4) Multiple sclerosis, (5) Refractory CNS glioblastoma, (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 volitionally added to the diet administered 420 g powder of the high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis 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. The diet was taken by the patient volitionally and the permission of the Ethics committee of the Metabolic Disorders Research Centre was obtained.

We found that in the cases tried, high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis 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 32 years with refractory primary generalized epilepsy. This patient was refractory to treatment and was on a combination of carbamazepine - 1200 mg/day and sodium valproate - 1200 mg/day. The seizure frequency at the start of therapy was 10 episodes/day. When the high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet was started, the dose of carbamazepine and sodium valproate reduced to half the respective dose in the first month and 1/4th 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 1 per month. There were no side effects noticed.

2. Refractory schizophrenia

Female aged 32 years with refractory schizophrenia of 3 years duration. The patient was on risperidone - 6 mg/day and clozapine - 50 mg/day. The high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet 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	2	0
A2 - Hallucination	2	0
A3 - Disorganised speech	3	0
A4 - Disorganised thought	3	1
A5 - Alogia, avolition, affective flattening	3	1

B - Interpersonal relation	1	0
Work	1	0
Education	1	0
Self-care	1	0
Total	14	2

3. Refractory Parkinson's disease

Female aged 65 years with idiopathic Parkinson's disease. She was on syncapone 150 mg, pramipex - 1.5 mg/day and pacitane - 12 mg/day). The high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet was started and dose of anti-Parkinsonian drugs was 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 / behaviour / mood, (2) Activities in daily living, (3) Motor examination, and (4) Complication of therapy.

	I	II	III	IV	Total
Pre-therapy score	5	12	12	12	41
Post-therapy score	1	1	4	1	7

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

4. Refractory multiple sclerosis

Female aged 28 years diagnosed as having multiple sclerosis based on Poser's criteria. The patient was on routine immunosuppressive therapy with prednisolone - 60 mg/day and mycophenolate - 500 mg/day. She was put on high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and

Emblica officinalis ketogenic diet with the respective doses of prednisolone and mycophenolate 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 - 3 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 72 years old with massive right frontoparietal glioblastoma with midline shift. The patient had already undergone the routine radiotherapy and taken the chemotherapy course. She was put on the high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet. 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

Female aged 42 years diagnosed as having acquired immunodeficiency syndrome. She was positive for HIV by both Elisa and western blot. He had generalized lymphadenopathy and hepatosplenomegaly. Her weight was 52 kg. The initial CD_4 count was 100 cells/cumm.

She was put on high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet. The treatment duration was one year.

After 6 months of therapy the CD_4 count increased to 400 cells/cumm and after one year of therapy to 500 cells/cumm. The weight increased to 75 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 59 years with freshly diagnosed non-insulin dependent diabetes mellitus, obesity, hypertension, hypertriglyceridemia, unstable angina and recurrent episodes of TIA.

She was put on the high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet. The duration of treatment was one year.

Parameters before starting treatment were as follows:

1. Fasting blood sugar - 296 mg%

Post prandial blood sugar - 430 mg%

2. Serum triglycerides - 400 mg%

3. Episodes of unstable angina - 4/month

ECG showed inferolateral ischaemia

4. Episodes of transient ischaemic attack of the MCA territory - 3/year
5. Weight of the patient - 80 kg
6. Insulin requirement - was on 40 units of lente insulin daily.

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

1. Fasting blood sugar - 96 mg%

Post prandial blood sugar - 142 mg%

2. Serum triglycerides - 120 mg%
3. Episodes of unstable angina - nil/month

ECG showed no changes

4. Episodes of transient ischaemic attack of the MCA territory - nil/year
5. Weight of the patient - 60 kg
6. 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 85 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 high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa

pterygosperma and Emblica officinalis ketogenic diet. 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 10 years had severe mental retardation with a diagnosis of trisomy 21. His IQ assessment gave a value of 19 before therapy.

The patient was put on the high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet for 2 years.

The IQ assessment at the end of the therapy gave a value of 52. There were no side effects for the therapy.

10. Autistic spectrum disorder

Male patient 4 years with autistic spectrum disorder. Patient was given the high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis ketogenic diet 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 - 25 patients
5. Refractory CNS glioblastoma - 15 patients
6. Diabetes mellitus - 50 patients
7. Neuronal aging and dementia of the Alzheimer's type - 25 patients
8. Down's syndrome - 15 patients
9. Acquired immunodeficiency syndrome - 15 patients
10. Autism - 50 patients
11. CAD - 50 patients
12. Stroke - 50 patients
13. Lupus syndrome - 25 patients

A paleo organic high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis described herein for the treatment of the following disorders: (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.

Characterised in that the high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis contains:

1. 10 g of Curcuma longa - A

2. 10 g of Emblica officinalis - B
3. 100 g of whole coconut powder - C
4. 100 g of dried Moringa pterysperma leaves - D
5. 100 g of Powdered dried black gram -E
6. 100 g of Powdered dried ash gourd - F

A high fibre, legume protein and high medium chain triglyceride ketogenic diet along with natural antibiotics Curcuma longa, Moringa pterygosperma and Emblica officinalis for amelioration of condition such as mentioned below by killing endosymbiotic actinidic archaea and decrease in endogenous digoxin synthesis: (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.

Holobiont and Hologenome - The Role of Nutribionts

The homo neanderthalic host and the archaeal symbiont together form the holobiont and form a unit of selection in evolution. The host homo neanderthalic genome and the archaeal genome together form the hologenome. The requirement of archaea for the evolution of homo neanderthalis indicates that for development of the Neanderthal phenotype archaea act as a nutribiont. The homo sapien host and the gut mirobiota evolved on a high fibre diet are called similarly a holobiont and the homo sapien genome and the gut microbiota genome evolved on a high fibre diet is called the hologenome. The fecal microbiota of either species acts as a nutribiont. In symbiotic evolution altering the symbiont alters the host. This is demonstrated in the case of C elegans where a microbe free diet produces developmental retardation, infertility and

reduced life span. The symbiont alters the transcriptome, metabolonome, life span of the host. The fertility of the host is also altered by protozoal parasites in the gut as indicated by the symbiont ascaris lumbricoides. Ascaris lumbricoides produces immunosuppression and immune escape increasing the chance of getting pregnant and produces increased fertility and increase in number of children of the host. The symbiont toxoplasma can modulate brain behaviour by producing impulsive risky behavioural traits. Thus the hologenome defines the species. The endosymbiotic archaea induced by taking a high fat high protein non-vegetarian diet defines homo neanderthalis. The gut microbiota induced by taking a high fibre diet defines the homo sapien species.