# EMERGENCY MANAGEMENT SYSTEM





Accessibility for the public to the Emergency Management System,
to adequate radio space for providers to communicate with each other in spite of disaster, communications is the epitome of EMS.

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RIGHT TO SCIENCE CLUB

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# ENT, Ophthalmology, Dermatology & Cosmetology


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Don’t judge me unless you have looked through my eyes

# DEPARTMENT OF OPHTHALMOLOGY

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## FOREWORD

*Ophthalmology department at Virinchi Hospitals provides comprehensive, multidisciplinary ophthalmology care for adults and children requiring routine eye care, as well as patients with wide variety of eye problems.*

*We provide diagnostic, therapeutic, and surgical expertise in the sub-specialties of glaucoma, cornea, external disease, allergy, uveitis, retina and vitreous, neuro-ophthalmology, low vision aids, reconstructive and plastic surgery, and diseases of the orbit. The department also offers auxiliary services in eye care ranging from visual field testing to angiography, corneal mapping, retinal tomography, and laser therapy.*

*The department also specializes in treating cataracts in babies and children, traumatic eye injuries, juvenile glaucoma and a variety of other conditions.*

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# Dr. Murali Krishnamachary Aasuri

M.D. (Ophthal) AIIMS, DNB

**Sr. Consultant Ophthalmologist**

Dr. Murali Krishnamachary Aasuri, is a Sr. Consultant in Department of Ophthalmology at Virinchi Hospitals. Before joining Virinchi Hospitals, he started his professional career with L V Prasad Eye Institute as Fellow in Cornea and Anterior Segment in 1994 and later worked as Consultant Ophthalmologist from 1995-2003. Later, he set up his own clinic and started practice at Sulochana Eye Center, Hyderabad till date. His main areas of interest are adult & pediatric cataract surgery, complicated cataract surgery, refractive surgery (LASIK, ICL, RLE), corneal transplantation (PK, DSEK, DALK, DMEK) and contact lenses.

Dr. Murali Krishnamachary finished medical school at Osmania Medical College in 1988. He did his Junior and Senior Residency (Post-graduation) in Ophthalmology from R.P. Center, AIIMS, New Delhi between 1989-1993. He was later convened with Fellowship in Cornea and Anterior Segment in 1994 at L V Prasad Eye Institute. He also worked as faculty at L V Prasad Eye Institute during his eight year tenure.

He has lectured extensively as an invited speaker at both international and national meetings. He has many publications in peer-reviewed literature, in both national and international publications.

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MEET OUR EXPERTS

# Dr. Charuta J. Puranik

M.B.B.S., D.N.B. (Ophthalmolgy)
Cornea Fellowship LVPEI

**Consultant Ophthalmologist**
**Cornea & Anterior Segment Specialist**

Dr. Charuta J. Puranik is Consultant Ophthalmologist at Virinchi Hosptials in department of Ophthalmology. Prior to joining Virinchi Hospitals, she was a Senior Cornea, Refractive and Anterior Segment Specialist Consultant at Sree Netralaya and Laser Center, Hyderabad. She worked as an expert Cataract, Cornea and Anterior Segment surgeon at Tej Kohli Cornea Institute, L V Prasad Eye Institute in early 2016.

She began her career as Clinical Adjunct in Cornea and Anterior segment at L V Prasad Eye Institute. She worked as Specialist Consultant for Cornea and Ocular Surface in department of Ophthalmology at Wavikar Eye Institute for a year and later was associated with various eye hospitals at Mumbai, Solapur and Sangli as visiting Lamellar and Ocular Surface surgeon from 2013-2016.

Dr. Charuta under graduated from Dr. V.M. Medical College, Solapur in 2005. She did her Post Graduate Residency program and Diplomat of National Board (D.N.B.) in Ophthalmology from the prestigious Aravind Eye Hospital and Post Graduate Institute of Ophthalmology from 2006-2009. Later, she was an Eyesight International Fellow at Cornea and Anterior Segment from the world renowned L V Prasad Eye Institute Hyderabad from 2010 to 2012. She has cleared examinations conducted by International Council of Ophthalmology.

She is Life member of All India Ophthalmic Society, Cornea Society of India, USI. In addition, she has presented and participated in many national and international Ophthalmology conferences.

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# TREATMENTS AND THERAPIES OFFERED

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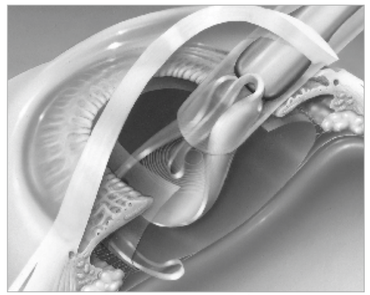
## CIRRUS HD-OCT 500

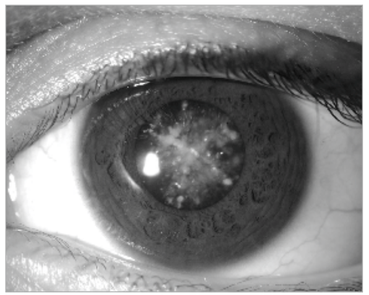
### UNIQUE FEATURES

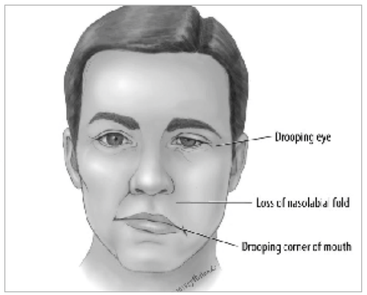
- Great solution for comprehensive ophthalmic practices
- An easy-to-learn, easy-to-use instrument for the management of glaucoma and retinal disease, retina assessment for cataract surgery, and anterior segment imaging for corneal disease
- Equipped with new OCT camera enables quick OCT fundus image refresh
- Has NEW Macular Thickness OU Analysis
- Useful for Ganglion Cell Analysis
- Has Guided Progression Analysis
- Useful for studying Macular Thickness and Change Analysis
- Useful for studying Macular Thickness Normative Data

**DIAGNOSTIC & THERAPEUTIC APPLICATIONS:**

- Glaucoma
- Retinal disease
- Retina assessment for cataract surgery
- Anterior segment imaging for corneal disease
- Age-Related Macular Degeneration
- Diabetic Retinopathy








- Conjunctivitis
- Corneal Abrasions
- Corneal disorders
- Corneal scratch, injury, ulcer and infection
- Cranial arteritis
- Diabetes-related eye diseases
- Diabetic retinopathy
- Drooping eyelid
- Dry eyes
- Entropion and ectropion
- Epiretinal membrane
- Achromatopsia
- Amblyopia

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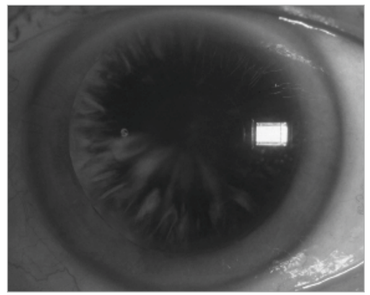
## HUMPHREY FIELD ANALYSER

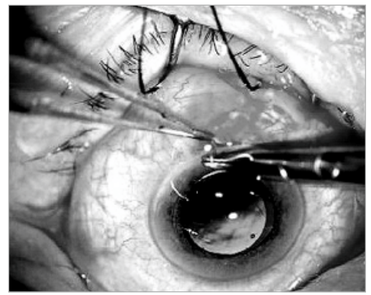
### UNIQUE FEATURES

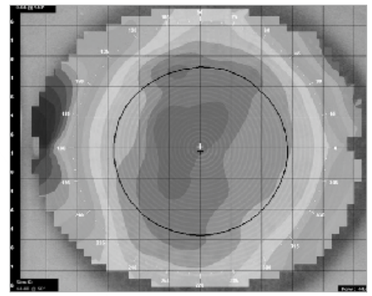
- Provides a streamlined and faster workflow
- Reduces setup time with a single trial lens
- Equipped with an intuitive new SmartTouch™
- Interface that helps to shorten chair time
- Accelerated clinic flow: equipment that can be learned quickly and operated easily
- Improved confidence in visual field test results with RelEYE
- Avails seamless transferability of legacy data
- Easy to use kinetic graphical user interface with full 180° visual field testing range

**DIAGNOSTIC & THERAPEUTIC APPLICATIONS:**

- Used for general screening
- Used for macula, retinal conditions
- Used for neuro-ophthalmic conditions
- Early Glaucoma Detection
- Advanced glaucoma
- Neurological conditions







- Aniridia
- Aniseikonia
- Blepharitis
- Blood in an eye
- Cataract
- Cataracts
- Chemical burn
- Choroiditis
- Coloboma
- Colorblindness
- Macular degeneration
- Macular degeneration, age-related (wet and dry)
- Macular hole
- Melanoma of the eye, adult and paediatric
- Misaligned eyes

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## KERATOGRAPH

### UNIQUE FEATURES

- High-definition color camera for image and video documentation
- Imaging of the upper and lower meibomian glands
- Non-invasive tear film break up time and tear meniscus height measurements
- Assessment of the lipid layer and tear film particles
- Grading of the bulbar redness
- Real fluorescein imaging with grading for corneal staining and to assess the fit of the contact lens on the eye

**DIAGNOSTIC & THERAPEUTIC APPLICATIONS:**

- Dry eye
- Corneal topography
- Meibomian gland dysfunction

- Near-sightedness (myopia)
- Neuro-ophthalmology, adult and paediatric
- Ocular motility disorders
- Ophthalmic pathology
- Optic nerve and retina disorders
- Optic nerve hypoplasia
- Eye trauma
- Fuchs' dystrophy
- Glaucoma
- Glaucoma, chronic and acute
- Graves' disease
- Iritis
- Ischemic optic neuropathy
- Keratoconus
- Lazy eye

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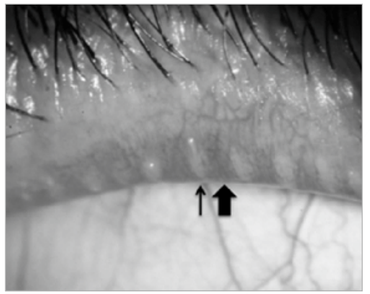
## IOL MASTER 700

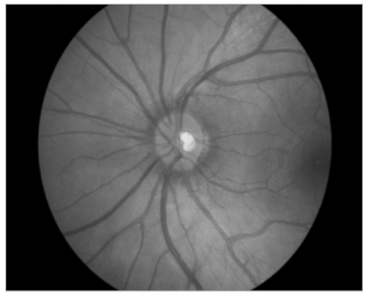
### UNIQUE FEATURES

- OCT image based biometry for imaging and visualization across the entire length of the eye
- Unique telecentric keratometry
- Complete set of biometric parameters for latest Intra ocular lens (IOL) power calculation formulas
- Good refractive outcomes with outstanding refractability

**DIAGNOSTIC & THERAPEUTIC APPLICATIONS:**

- Unusual Eye Geometries
- Uveitis or retinal degenerations
- Cataract surgery





- Leber’s congenital amaurosis
- Low vision
- Optic neuritis
- Orbital cellulitis
- Paediatric eye disease
- Paediatric melanoma of the eye
- Pink eye
- Pink eye (conjunctivitis)
- Retina coloboma
- Retinal and vitreous diseases
- Retinal degenerative diseases
- Retinal detachment
- Retinal vein or artery occlusion
- Retinitis pigmentosa
- RetinoblastomaLeber’s congenital amaurosis
- Low vision
- Optic neuritis
- Orbital cellulitis

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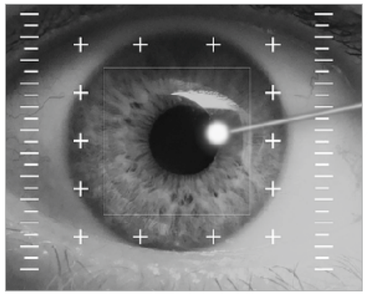
## PHACOEMULSIFICATION MACHINE

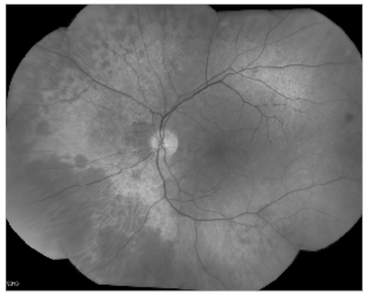
### UNIQUE FEATURES

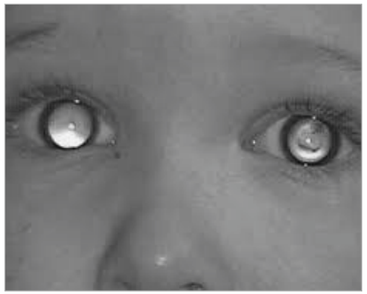
- Reduces Repulsion
- Improves followability and decreases dispersion of nuclear fragments during emulsification
- Reduces irrigation fluid consumption and increases the surgical efficiency
- Less dependence on excessively high fluidics
- Allows the use of sealed incisions and continuous torsional modes
- Continuously monitors and responds to ongoing phacoemulsification conditions throughout the procedure

**DIAGNOSTIC & THERAPEUTIC APPLICATIONS:**

- Cataract surgery







- Paediatric ophthalmology
- Pediatric neuro-ophthalmology
- Paediatric optometry
- Refractive surgery
- Retinal surgery
- Strabismus Surgery
- Eyelid surgery
- Laser eye surgery
- LASIK eye surgery
- Medical ophthalmology
- Neuro-ophthalmology
- Ocular imaging
- Ophthalmic plastic and orbital surgery
- Optometry, comprehensive and pediatric
- Orbital, plastic and lacrimal surgery

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TREATMENTS AND THERAPIES OFFERED

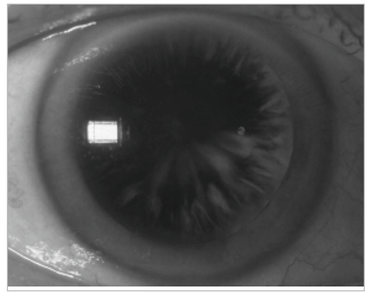
## LUMERA I MICROSCOPE

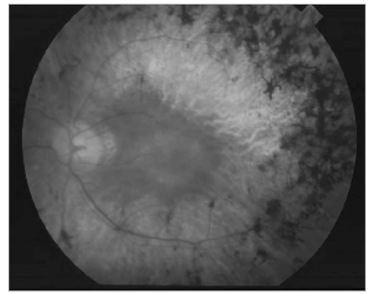
### UNIQUE FEATURES

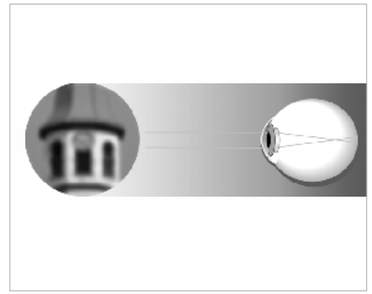
- SCI (Stereo Coaxial Illumination) adds constant brilliance and brightness
- Completely apochromatic optics with high light transmission
- The surgical microscope's touch screen controls both, the microscope head and the video camera.
- It is small and easy to move
- Swing-in retinal protection device protects the patient against phototoxicity
- XY coupler for motorized fine movement

**DIAGNOSTIC & THERAPEUTIC APPLICATIONS:**

- Cataract surgery
- Retinal surgery
- Refractive surgery
- Red reflex
- Ametropic eyes







- Eyelid surgery
- Laser eye surgery
- LASIK eye surgery
- Medical ophthalmology
- Neuro-ophthalmology
- Ocular imaging
- Ophthalmic plastic and orbital surgery
- Optometry, comprehensive and pediatric
- Orbital, plastic and lacrimal surgery
- Orthoptic and electrodiagnostic service for strabismus, amblyopia and eye movement disorders
- Paediatric ophthalmology
- Pediatric neuro-ophthalmology
- Paediatric optometry
- Refractive surgery
- Retinal surgery
- Strabismus Surgery

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# BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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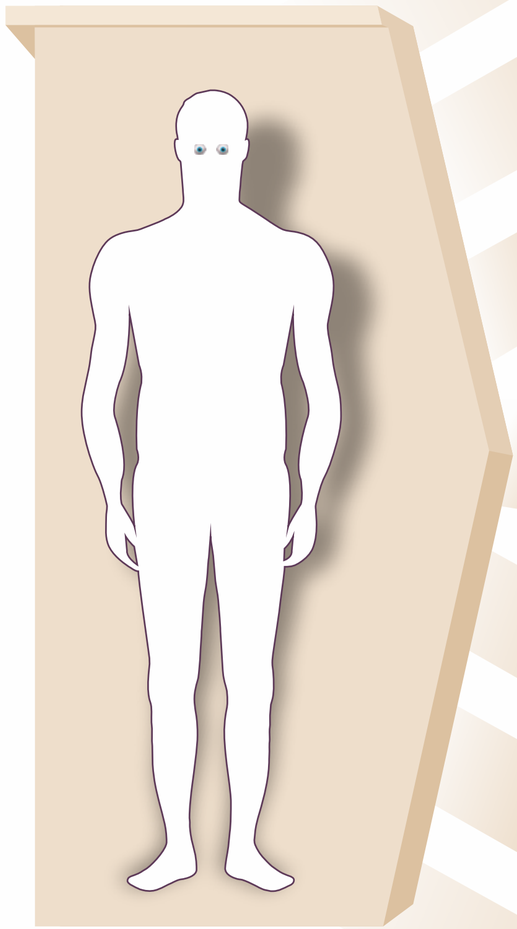

**B**IOCHEMICAL

**E**LECTROPHYSIOLOGICAL

**H**ISTOPATHOLOGICAL

**A**NATOMICAL

**P**ATHOGEN SCREENING

**P**HENOTYPIC & GENETIC

**I**MMUNOLOGICAL

VIRINCHI'S PROPRIETARY BE-HAPPI™ DIAGNOSTICS FRAMEWORK

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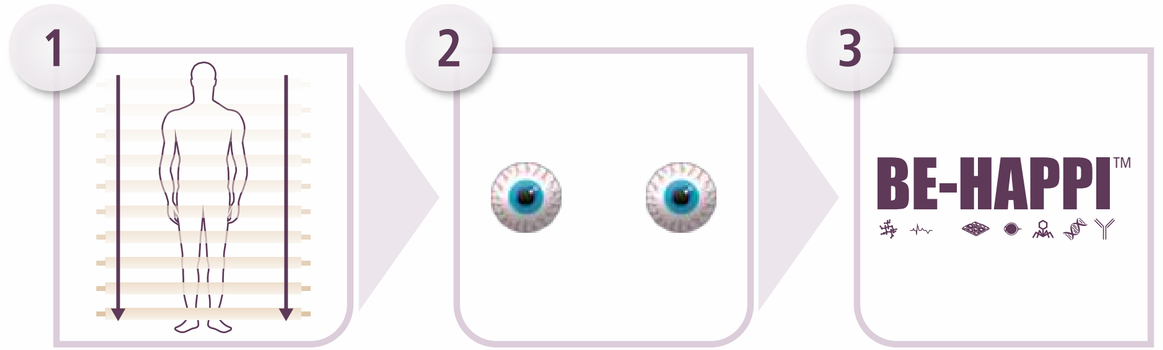


EVERY MEMBER UNDERGOES A MASTER HEALTH CHECK UPON JOINING

IF PROBLEM IN ORGAN SYSTEM DISCOVERED

VIRINCHI'S BE-HAPPI™ FRAMEWORK IS APPLIED TO THE ORGAN SYSTEM AND TREATMENT PLANNED ACCORDINGLY

Biomarkers are biological indicators that provide us with a means of understanding the relationship between measurable biological processes and clinical outcomes for evaluating health and wellness. Further, the study of biomarkers enables us to devise treatment options for all disorders and diseases since they enhance our understanding on physiology and anatomy of an individual.

Proper functioning of every organ and system in our body is essential for us to live a healthy and good quality of life as we progress through various phases of our life. Any deviation from performing one function may result in disordered physiological processes and will be associated with either symptomatic or asymptomatic disorder. If the disorder is manifested in the form of symptoms and signs, then it can be identified accurately with the help of specific diagnostics tests. However, asymptomatic disorders that typically do not show any clinical symptoms and signs could gradually lead to secondary complications affecting one or multiple systems that may be difficult to understand and treat

Therefore it is very essential to understand the health of all the organs and systems of our body irrespective of respective/overall disorderliness with or without any symptoms in order to understand thoroughly whether any function is impaired or progressing towards impairment with the help of comprehensive diagnostic tests. Virinchi's proprietary BE-HAPPI™ evaluates the health status of every organ and organ system from a biochemical, electrophysiological, histological and cytological, anatomical, pathogenic, phenotypic and genotypic, immunological perspectives. The influences of these factors on biomarker levels also indicate disorder's onset and/or its progression either as an independent or comorbid consequence.

With advanced and sophisticated technology housed in world-class infrastructure, and strong rooting in evidence-based medicine, Virinchi is well-positioned to undertake this comprehensive analysis to derive accurate and predictable diagnosis, thus enabling its physicians to devise individual-specific predictive, preventive and reactive therapies and interventions.

VIRINCHI'S PROPRIETARY BE-HAPPI™ DIAGNOSTICS FRAMEWORK

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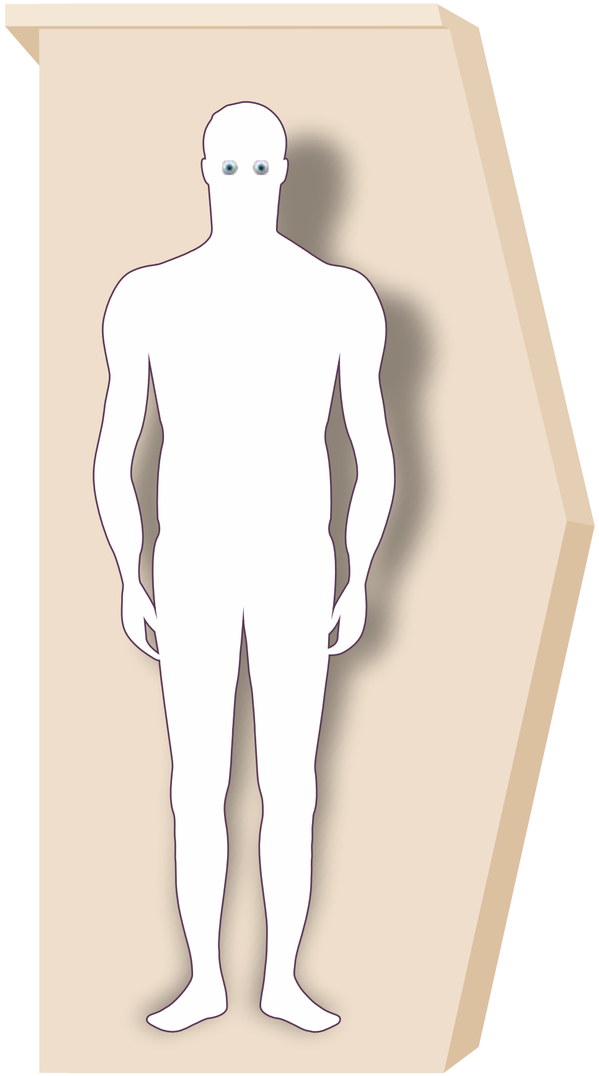

## BIOCHEMICAL

Many of the biological molecules including nucleic acids, proteins, lipids, fats and naturally occurring small chemicals that are formed due to metabolic and physiological activities serve as important contributors to understand the health of every organ and system in our body; and also help us to evaluate the nature and degree of disorderliness across systems and organs with the help of analytical, cytological, histochemical and immunological methodologies.

### PARAMETERS TESTED @ VIRINCHI

Alpha enolase, Amyloid beta, Apelin, Apo A, Apo B, Apo E, Apolipoprotein, C reactive protein (CRP), carboxyethylpyrrole (CEP), Ceruloplasmin, Chemerin, Cholestrol, Complement C3,Complement C5, Cystatin, Epidermal growth factor (EGF), Free Thyroxine (T4), Growth factors, IFN gamma, IL 1 Alpha, IL 1 Beta, IL 1Ra, IL 2R, IL 6, IL 7, IL1, IL10, IL11, IL13 ,IL4, Lactoferrin, Lipocalin, Low-density lipoprotein cholesterol (LDL-C), NGAL, Nitrotyrosine(NT), N-retinylidene N-retinylethanolamine, Osteoprotegerin(OPG), Retinol binding protein (RBP)4, Superoxide dismutase (SOD), TGF-Transforming growth factor, Thyroid-stimulating Hormone (TSH), TNF alpha, Transferrin (TF), TRH, Triglycerides, Triiodothyronine (T3), TSH receptor, Tumor necrosis factor beta, Tyrosine kinase with Ig and EGF homology domains, Urinary estrone, Vasoactive intestinal peptide (VIP), Vasopressin, VEGF, Von Willebrand factor

## ELECTROPHYSIOLOGICAL

Electrodiagnostic biomarkers provide information on electrical activity (action potential) due to native or altered electrophysiology of cells and tissue or their response towards electrical stimuli (evoked potential). Typically, electrocardiography (ECG), electroencephalography (EEG), and electromyography (EMG) are employed to measure the electrical activity values and help to diagnose, evaluate, and treat the individual with impairments of the neurologic or neuromuscular or muscular systems.

### PARAMETERS TESTED @ VIRINCHI

Corneo-retinal standing potential-EOG(Electrooculogram)signals, Electrical response of rods and cones-electroretinography (ERG), Nystagmus-electronystagmogram (ENG)

## HISTOPATHOLOGICAL

Cytopathology and Histopathology observations of cells and tissue allow the understanding of gross structural, physiological and molecular changes at the cell and tissue level respectively. These microscopic observations with grading and staging are vital to understand the response of cells due to external stimuli or DNA changes which either might result into a transient change or pathological consequence requiring suitable surgical or medical or radiological therapy.

### PARAMETERS TESTED @ VIRINCHI

Atypical lymphocytic infiltrate, Collagen type VIII, Conjunctival biopsy-granulomatous inflammation, Granulomatous inflammation of the choroids and retina, Intraocular inflammation, Metaplastic changes in choroid and RPE, Retinal detachment, Retinal necrosis

## VIRINCHI'S PROPRIETARY BE-HAPPI™ DIAGNOSTICS FRAMEWORK

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# BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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## ANATOMICAL

Imaging techniques offer sensitive and precise visualization and also digitization of anatomical features of organs and systems of the body. It helps the patient or individual to undergo a gamut of pain free investigations, non-invasively. And these biomarkers can be measured using either radiological or non-radiological modalities such as, X-ray, CT, Ultrasonography, Electroencephalography, Magnetoencephalography, and Magnetic Resonance Imaging in order to provide us with either qualitative or quantitative measure of the anatomical features and physiological processes such as blood flow.

### PARAMETERS TESTED @ VIRINCHI

Arteriovenous nicking, Bifurcation geometry , Capillary flow velocity-Scanning laser ophthalmoscope, Pigmented retina lesions such as choroidal naevi, Retinal arteriolar narrowing, Retinal nerve fibre layer(RNFL) changes, Vascular tortuosity, Vessel diameter

## PHENOTYPIC & GENETIC

Changes brought about to the DNA, RNA and their respective derivatives due to germline or somatic mutations influence an individual's overall existence and susceptibility or resistance towards a wide variety of disease causing infectious agents. Understanding the underlying molecular details with the help of advanced/next generation sequencing technologies provides insights into either devising a therapeutic or corrective intervention.

### PARAMETERS TESTED @ VIRINCHI

8-OHdG, 8-oxodG, Adhesion molecules- ICAM1, Adhesion molecules- VCAM1, AQP1, AQP4, ARMS2/HGRA1, CCL2, CCL-3, CCL-4, CCL-5, CCR2, CFBa, CFBb, CFC3a, CFC3d,CFC5a, CFH, Complement component factor D (CFD), CXCL1, CXCL10, CXCL11, CXCL2, CXCL8, CXCL9, HLA-DR, ICAM, LPGDS, LRR, MAPKs, MCP-1, MMP7, NACHT, NLRP3, TIMP3, Urocortin 2 (UCN2), VCAM, VEGF-A, VEGF-C, Von Hippel–Lindau tumor suppressor gene (VHL), XRCC1

## PATHOGEN SCREENING

Pathogen screening helps to find out either presence or absence of all the relevant pathogenic microorganisms including - bacteria, fungi, viruses, mycoplasma and protozoans. This identification process allows the healthcare provider with specific information on every possible mode that can be implemented towards prevention, treatment and eradication. It also allows the physician to decide pathogen specific medication in suitable dosage and form for effective and safe elimination without causing any adverse effects to the affected patient.

### PARAMETERS TESTED @ VIRINCHI

Acanthamoeba castellani, Adeno virus, Aspergillus, Bacillus cereus, Candida albicans, Chikungunya virus, Chlamydia trachomatis, Dengue virus, Epstein barr virus, Fusarium, Haemophillus aegypti, Haemophillus influenzae, Herpes simplex, Herpes zoster, Lymphocytic choriomeningitis virus-LCMV, Moraxella lacunata, Neisseria gonorrheae,Propionibacterium acnes, Pseudomons aeruginosa, Serratia, Staphylococcus aureus, Staphylococcus epidermidis, Streptococcus pneumoniae, Toxoplasma gondii, Vibrio species, West nile virus, Yersinia enterocolitica

## IMMUNOLOGICAL

The immunologic Biomarkers provide insights into the body's response towards cancer, infectious diseases, immunization, immunodeficiency, allergies, asthma, autoimmunity, and other immune disorders. These features can be studied from variety of biological specimens by using highly advanced and high throughput immune assay systems. And these biomarkers also help to understand the extent of disease progression and probability of positive prognosis for a wide range of diseases.

### PARAMETERS TESTED @ VIRINCHI

Anti Chlamydia antibodies, Anti extractable nuclear antigen test (anti ENA), Anticardiolipin antibodies test, IgM, Monoclonal and polyclonal antibodies, Staphylococcus antibodies, Streptococcus antibodies

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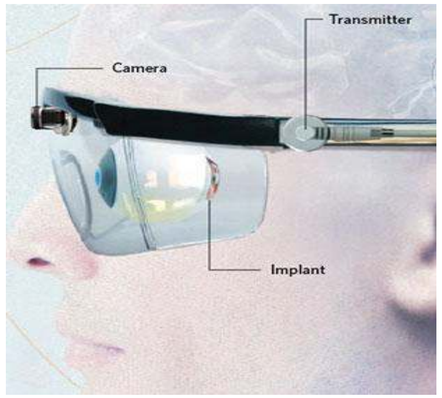
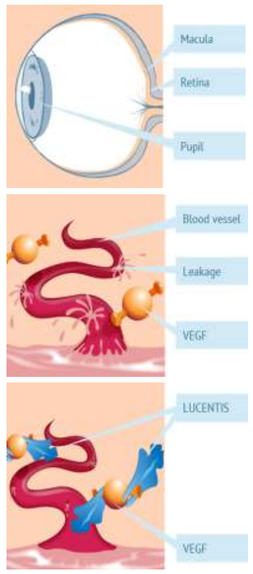
## THE BIONIC EYE (OR) RETINAL PROSTHESIS




- The Argus® II Retinal Prosthesis System ("Argus II") is intended to provide electrical stimulation of the retina to elicit visual perception in blind individuals with severe to profound Retinitis Pigmentosa
- The implant is paired with a pair of camera-equipped glasses and a processor that captures video from the glasses. That video is then sent as a series of pulses to the electrodes, stimulating the patient's remaining nerve fibers.

## MONOCLONAL ANTIBODY THERAPY FOR AMD



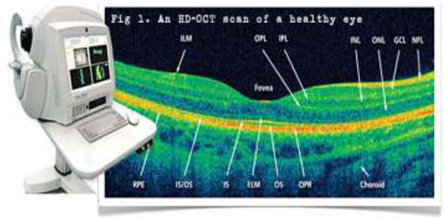

- AMD is a common eye condition and a leading cause of vision loss, It causes damage to the macula, a small spot near the center of the retina and the part of the eye needed for sharp, central vision, which lets us see objects that are straight ahead
- Ranibizumab is a recombinant humanized IgG1 kappa isotype monoclonal antibody fragment designed for intraocular use
- Ranibizumab binds to and inhibits the biologic activity of human vascular endothelial growth factor A (VEGF-A)
- It is indicated for the treatment of macular edema after retinal vein occlusion, age-related macular degeneration(wet), and diabetic macular edema



RIGHT TO SCIENCE @ OPTHALMOLOGY

## OPTICAL COHERENCE TOMOGRAPHY (OCT)

- Optical coherence tomography (OCT) is a non-invasive imaging test that uses light waves to take cross-section pictures of your retina, the light-sensitive tissue lining the back of the eye
- Optical coherence tomography (OCT) is useful in diagnosing many eye conditions
- Conditions diagnosed include: Macular hole, Macular pucker, Macular edema, Age-related macular degeneration, Glaucoma, Central serous retinopathy, Diabetic retinopathy, Preretinal membranes etc.

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28,000 diseases to fight

# DEPARTMENT OF EAR, NOSE AND THROAT

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# Dr. Narendra Babu K

## Sr. ENT Consultant NAET Practitioner

Dr. Narendra Koyyalamudi has worked in ENT specialty since 1974 and is trained as SHO, Registrar and Senior Registrar (one Year) in Ireland mostly in Belfast Rotation. He has also worked as ENT registrar (at Dublin) for 18 months. His Special interests include Vertigo and Endoscopic Sinus surgery. Most of his work for past ten years is in sinus surgery cases. He has expertise in treating patients who have developed balance problems with acupuncture & allergic patients with NAET.

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# DEPARTMENT OF EAR, NOSE AND THROAT

## FOREWORD

*The department for ENT at Virinchi hospitals offers one of the best and most advanced healthcare treatment options in India for conditions and diseases affecting Ear, Nose and Throat.*

*The treatments include functional corrections, cosmetic surgeries, treatment for allergies, immune function disorders, infections, etc.*

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# Dr. V. Phaniendra Kumar, M.S

E.N.T. & Phonosurgeon, Emeritus Prof. E.N.T.
Founder, The Association of Phonosurgeons of India (APSI)
**Director, Virinchi Melody Voice Center**

Dr. V. Phaniendra Kumar is Sr. Consultant Surgeon in department of E.N.T. and Phonosurgery at Virinchi Hospitals. He is also the Director of Virinchi Melody Voice Centre.

He started his professional career as E.N.T. Consultant in Sulaemania Teaching Hospital in the year 1978. Later, he took up teaching as profession and joined E.N.T. Guntur Medical College as Asst. Professor. He was associated with that college for 11 years where he also taught plastic surgery for three years. Dr. Phaniendra was also the professor for clinical pharmacology and E.N.T. in same college. He served as head of the department of E.N.T. in Guntur Medical College from year 1998 to 2002. He then joined Mamata Medical College, Khammam as Hon. Professor of E.N.T. in the year 2003. In the same year, Dr. Phaniendra was accredited for Post-Graduate training in E.N.T by National Board of Examinations and was also the Professor, Director and Chief Teaching Faculty at Sri Sathya Sai Institute of E.N.T., Guntur.

Dr. Phaniendra Kumar passed M.B.B.S. from Andhra University in 1971 and M.S. (E.N.T.) in 1976 with specialisation in Oto Laryngology and Head & Neck Surgery. In addition, Voice Disorders and Phonosurgery are his special interests. He is very popular amongst members of Telugu Film Industry for he treated on improving voices of many eminent actors. He is the Emeritus Professor E.N.T. and Founder of The Association of Phonosurgeons of India (APSI).

For services in department of E.N.T. and Phonosurgery, Dr. Phaniendra Kumar was honoured with Life time Achievement Award by the Association of Phonosurgeons of India 2013 and Father of Phonosurgery Award by AOI Orissa 2014.



MEET OUR EXPERTS

# Dr. Manish Gupta

MBBS, MS (ENT)
**Head of the Department**
**Consultant ENT & HNS Surgeon**

Dr Manish Gupta is Head of the E.N.T Department at Virinchi Hospitals. He has overall 16 years' experience in his field. Prior to joining Virinchi Hospitals, he worked as a Senior Consultant in the Department of ENT at KIMS Hospital, Kondapur and as a Teaching Faculty for undergraduate and post-graduate students at Osmania Medical College, Hyderabad. During the last two decades he has gained hands-on experience in the endoscopic sinus surgery and performed more than 200 bronchoscopies for the removal of foreign bodies. He regularly performs the routine procedures like FESS, Head and Neck Surgeries, tympanoplasties and procedures for Obstructive Sleep Apnea (OSA).

He believes in providing the best quality care with utmost precision by using robust technology. Rhinology and Head & Neck surgery are his areas of interest. He likes to contribute towards medical and clinical service by organizing screening programs and health awareness camps. And, in this direction, he has organized several free deafness screening programs and ENT camps in many underprivileged areas of twin cities.

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# TREATMENTS AND THERAPIES OFFERED

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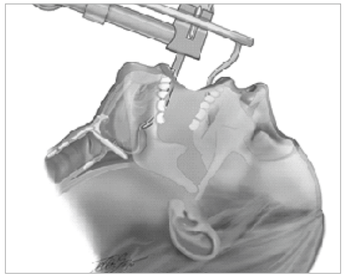
## COBLATOR II

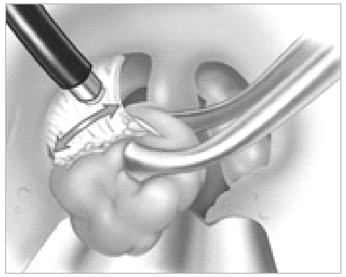
### UNIQUE FEATURES & BENEFITS

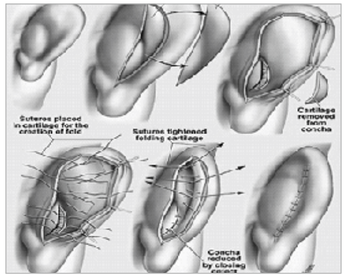
- Dissolves tissue at the molecular level in a highly-controlled manner
- Minimal thermal effect on surrounding tissue
- Wide selection of Plasma Wands designed for specific ENT surgical applications
- Efficient tissue ablation during ENT surgical procedures
- Bipolar coagulation for achieving efficient hemostasis
- Complete system is composed of a COBLATOR II Controller

### DIAGNOSTIC AND THERAPEUTIC APPLICATIONS

- Outer Ear Infections
- Middle Ear Infections
- Noise Induced Hearing Loss
- Meniere's Disease
- Tinnitus (ringing in the ears)
- Labyrinthitis & Vestibular Neuritis
- Otosclerosis
- Vocal Cord Lesions
- Thyroidectomy
- Heartburn & Gastroesophageal Reflux Disease (GERD)
- Tonsillectomy & Adenoidectomy
- Sleep Apnea
- Nosebleed (Epistaxis)
- Septoplasty
- Rhinoplasty
- Sinusitis
- Allergic Rhinitis








- Acid Reflux
- Adenoids
- Airway (inpatient laryngology procedures and office-based laryngology procedures)
- Airway reconstructive surgery
- Apert's Syndrome
- Balance problems
- Beckwith-Wiedeman Syndrome
- Benign Paroxysmal Positional Vertigo (BPPV)
- Breathing Problems
- Change in singing voice
- Changes in voice after trauma or surgery
- Cholesteatoma
- Chronic and recurrent ear infections
- Chronic coughs
- Cleft Lip and Palate/Craniofacial Anomalies
- Congenital anomalies of the head and neck
- Craniosynostosis
- Crouzon Syndrome
- Difficulty Swallowing
- Difficulty with loudness
- Dizziness
- Ear Infections (chronic and recurrent)
- Ear Tubes
- Earaches and Ear Infections
- Earwax and Earwax Blockage
- Facial Nerve Disorders
- Facial Trauma
- Goldenhar syndrome
- Head and Neck Cancer
- Tinnitus
- Hearing Loss
- Hemifacial microsomia
- Hoarseness
- Increased effort to talk
- Laryngitis
- Lost Sense of Smell
- Mouth Sores
- Nose Injuries
- Nosebleeds
- Obstructive Sleep Apnea
- Opitz Syndrome
- Pain or discomfort with speaking or singing
- Pfeiffer syndrome
- Pierre Robin Syndrome
- Recurrent sinusitis

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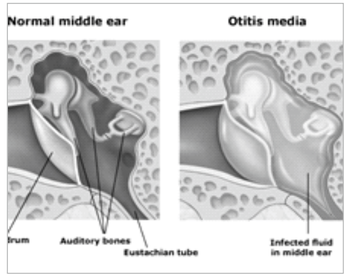
## STRAIGHTSHOT M5 MICRODEBRIDER

### UNIQUE FEATURES & BENEFITS

- First 30,000 rpm ENT microdebrider and microdebrider burs
- Faster, lighter, and smaller to aid operative efficiency, while 30k burs remove up to 10 times more material with improved durability and stability
- Control more than 125 blades and burs

### DIAGNOSTIC AND THERAPEUTIC APPLICATIONS

- Trephination of the Frontal Sinus
- Endoscopic dacryocystorhinostomy (DCR)
- Repair of Choanal Atresia
- Septoplasty associated with a deviated septum
- Septal spur resection




- Scratchy, weak or breathy voice
- Sinus Disease
- Sinus Infections and Sinusitis
- Sleep Apnea
- Sore Throat
- Speech and Language Disorders
- Stuffy Nose
- Swimmer's Ear
- The adenoids and tonsils
- Tonsil Infection
- Treacher-Collins Syndrome
- Velocardiofacial syndrome
- Vocal cord dysfunction
- Correction and Treatment Temporomandibular Joint (TMJ)
- Ear Plastic Surgery
- Electrocochleography & Videonystagmography
- Endoscopic Skull Base Surgery for tumors of the skull base
- Evaluation and treatment of head and neck tumors, including cancer care
- Laryngotracheal reconstructions
- Airway and swallowing evaluation and treatment
- Airway reconstructive surgery
- Bone-anchored hearing appliances
- Care for acute and chronic ear infections
- Cochlear Implants for the treatment of certain hearing disorders
- Congenital ear reconstructions
- Middle Ear Surgery
- Minor surgical procedures involving general sedation
- Non-medical rehabilitation of hearing loss through amplification and assistive listening devices
- Placement of tympanostomy tubes
- Removal of tumors of the ear
- Robotic Surgery for Throat and Larnyx Cancer

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# ENT: BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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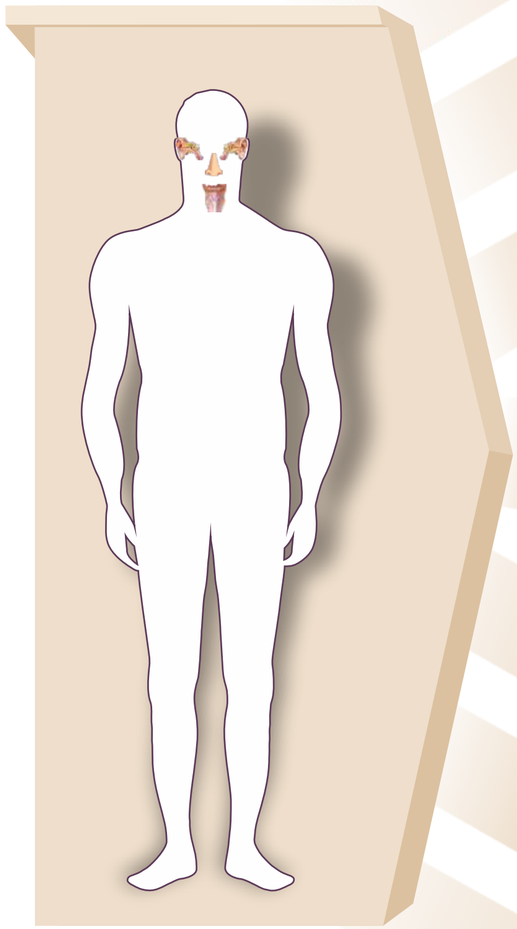

**B**IOCHEMICAL

**E**LECTROPHYSIOLOGICAL

**H**ISTOPATHOLOGICAL

**A**NATOMICAL

**P**ATHOGEN SCREENING

**P**HENOTYPIC & GENETIC

**I**MMUNOLOGICAL

VIRINCHI'S PROPRIETARY BE-HAPPI™ DIAGNOSTICS FRAMEWORK

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# ENT: BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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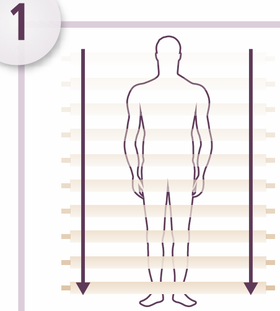
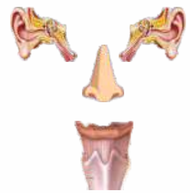
1



EVERY MEMBER UNDERGOES A MASTER HEALTH CHECK UPON JOINING

2



IF PROBLEM IN ORGAN SYSTEM DISCOVERED

3

BE-HAPPI™

VIRINCHI'S BE-HAPPI™ FRAMEWORK IS APPLIED TO THE ORGAN SYSTEM AND TREATMENT PLANNED ACCORDINGLY

Biomarkers are biological indicators that provide us with a means of understanding the relationship between measurable biological processes and clinical outcomes for evaluating health and wellness. Further, the study of biomarkers enables us to devise treatment options for all disorders and diseases since they enhance our understanding on physiology and anatomy of an individual.

Proper functioning of every organ and system in our body is essential for us to live a healthy and good quality of life as we progress through various phases of our life. Any deviation from performing one function may result in disordered physiological processes and will be associated with either symptomatic or asymptomatic disorder. If the disorder is manifested in the form of symptoms and signs, then it can be identified accurately with the help of specific diagnostics tests. However, asymptomatic disorders that typically do not show any clinical symptoms and signs could gradually lead to secondary complications affecting one or multiple systems that may be difficult to understand and treat

Therefore it is very essential to understand the health of all the organs and systems of our body irrespective of respective/overall disorderliness with or without any symptoms in order to understand thoroughly whether any function is impaired or progressing towards impairment with the help of comprehensive diagnostic tests. Virinchi's proprietary BE-HAPPI™ evaluates the health status of every organ and organ system from a biochemical, electrophysiological, histological and cytological, anatomical, pathogenic, phenotypic and genotypic, immunological perspectives. The influences of these factors on biomarker levels also indicate disorder's onset and/or its progression either as an independent or comorbid consequence.

With advanced and sophisticated technology housed in world-class infrastructure, and strong rooting in evidence-based medicine, Virinchi is well-positioned to undertake this comprehensive analysis to derive accurate and predictable diagnosis, thus enabling its physicians to devise individual-specific predictive, preventive and reactive therapies and interventions.

VIRINCHI'S PROPRIETARY BE-HAPPI™ DIAGNOSTICS FRAMEWORK

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# EARS: BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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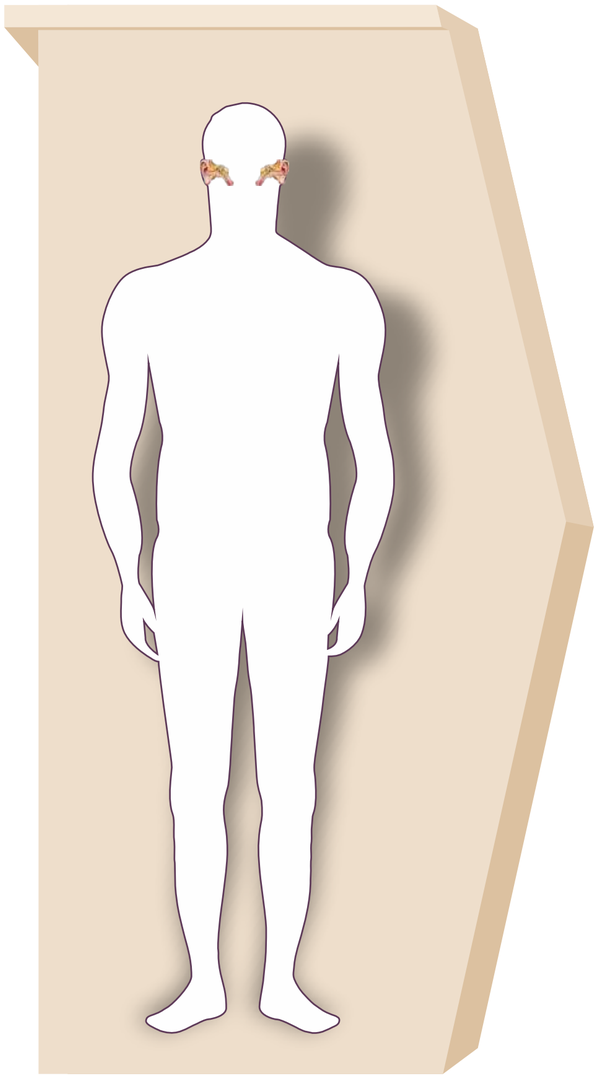

## BIOCHEMICAL

Many of the biological molecules including nucleic acids, proteins, lipids, fats and naturally occurring small chemicals that are formed due to metabolic and physiological activities serves as important contributors to understand the health of every organ and system in our body; and also help us to evaluate the nature and degree of disorderliness across systems and organs with the help of analytical, cytological, histochemical and immunological methodologies.

### PARAMETERS TESTED @ VIRINCHI

a2-HS-glycoprotein (fetuin A), a-antichymotrypsin, Albumin, Alpha tocopherol(Vitamin E), Alpha-1 Antitrypsin or α1-antitrypsin (A1AT), Amphiphysin 2, Apolipoprotein D(Apo D), ATP-Synthase, Bcl-2 family proteins, Calumenin, Cisplatin, Copine-6, C-reactive protein (CRP), Eosinophilic cationic protein, EsR1: Estrogen receptor1, Fodrin, Gelsolin, Glutamate, Glutamate receptor, Glutathione, Glutathione transferase, GTPases, Heme oxygenase, Inducible nitric oxide synthase, Interferon gamma (IFNγ), Interleukin 1 beta (IL1β), Interleukin 10 (IL-10), Interleukin 17A (IL-17 or IL-17A), Interleukin 4 (IL4), Interleukin 5 (IL5), Interleukin 6 (IL-6), Interleukin 8 (IL8 or chemokine (C-X-C motif) ligand 8, CXCL8), Interleukin-22 (IL-22), Intracellular calcium, Malondialdehyde (4-hydroxynonenal), Metallothionein, Myeloperoxidase, Nuclear factor-kappa beta (NF-kB), Peripherin, Peroxynitrite, Stereociliary tip-link protein, Stress-activated protein kinases, Transferrin, Transforming growth factor beta 1 (TGF-β1), Tryptophan hydroxylase, TSAT (Transferrin Saturation), Tumor necrosis factor alpha (TNF-α)

## ELECTROPHYSIOLOGICAL

Electrodiagnostic biomarkers provide information on electrical activity (action potential) due to native or altered electrophysiology of cells and tissue or their response towards electrical stimuli (evoked potential). Typically, electrocardiography (ECG), electroencephalography (EEG), and electromyography (EMG) are employed to measure the electrical activity values and help to diagnose, evaluate, and treat the individual with impairments of the neurologic or neuromuscular or muscular systems.

### PARAMETERS TESTED @ VIRINCHI

Auditory brainstem response (ABR), Distortion product otoacoustic emissions (DPOAEs) by electrcochleography (ECoG), Electronystagmogram, Evoked summating potentials (SPs) by electrcochleography (ECoG), Measure Mismatch negativity(MMN), Ortical auditory evoked potential (P1), Otoacoustic emissions (OAE) test

## HISTOPATHOLOGICAL

Cytopathology and Histopathology observations of cells and tissue allow the understanding of gross structural, physiological and molecular changes at the cell and tissue level respectively. These microscopic observations with grading and staging are vital to understand the response of cells to due to external stimuli or DNA level changes which either might result into a transient change or pathological consequence requiring suitable surgical or medical or radiological therapy.

### PARAMETERS TESTED @ VIRINCHI

Cholesteatoma fragments, c-jun, Eustachian tube function, Fibrocystic changes in tympanic membrane, Ossicular erosion in middle ear cavity, Proliferation cell nuclear antigen (PCNA), Tympanosclerotic plaques

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EARS: BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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## ANATOMICAL

Imaging techniques offer sensitive and precise visualization and also digitization of anatomical features of organs and systems of the body. It helps the patient or individual to undergo a gamut of pain free investigations, non-invasively. And these biomarkers can be measured using either radiological or non-radiological modalities such as, X-ray, CT, Ultrasonography, Electroencephalography, Magnetoencephalography, and Magnetic Resonance Imaging in order to provide us with either qualitative or quantitative measure of the anatomical features and physiological processes such as blood flow.

### PARAMETERS TESTED @ VIRINCHI

2/ Gadolinium enhanced 3-T MR images (endolymphatic hydrops); Supratubal recess (STR) (anterior epitympanic recess); Tegmen height; Degree of bony erosion; Enlargement of the fallopian canal; Ossicular erosion; Length of the eustachian tube; Osseous structures; Fluid-filled spaces; Intracanalicular and cerebellopontine angle lesions-MRI

## PATHOGEN SCREENING

Pathogen screening helps to find out either presence or absence of all the relevant pathogenic microorganisms including - bacteria, fungi, viruses, mycoplasma and protozoans. This identification process allows the healthcare provider with specific information on every possible mode that can be implemented towards prevention, treatment and eradication. It also allows the physician to decide pathogen specific medication in suitable dosage and form for effective and safe elimination without causing any adverse effects to the affected patient.

### PARAMETERS TESTED @ VIRINCHI

Corynebacterium species, Escherichia coli, Klebsiella, M catarrhalis, Measles virus, Moraxella catarrhalis, Mumps virus, Neisseria meningitides, Propionibacterium acnes, Proteus mirabilis, Pseudomonas aeruginosa, Rubella virus, Staphylococcus aureus, Staphylococcus epidermidis, Streptococcus anginosus, Streptococcus pneumoniae, Streptococcus pyogenes, Varicella zoster

## PHENOTYPIC & GENETIC

Changes brought about to the DNA, RNA and their respective derivatives due to germline or somatic mutations influence an individual's overall existence and susceptibility or resistance towards a wide variety of disease causing infectious agents. Understanding the underlying molecular details with the help of advanced/next generation sequencing technologies provides insights into either devising a therapeutic or corrective intervention.

### PARAMETERS TESTED @ VIRINCHI

Cadherin-23 (CDH-23), Carcinoembryonic antigen-related cell adhesion molecule 16, Caskin, Cochlin(COCH), Connexin-26, Cyclic nucleotide-gated channel a-3, Deafness Associated Tumor Suppressor (DFNA5), DNA (cytosine-5)-methyltransferase 3 alpha (DNMT3A), DNA (cytosine-5-)-methyltransferase 3 beta (DNMT3B), Mapka2: MAP Kinase activated protein kinase2, Methyl-CpG-binding proteins (MeCP), Neural EGFL Like 2 (NELL2), Nipsnap, Nuclear factor-erythroid 2-related factor 2 (Nrf2), Organ of Corti protein 1(OCP-I), Organ of Corti protein 2 (OCP-II), Otolin-1, Paralemmin-1, Potassium voltage-gated channel subfamily Q member 4(KCNQ4), POU4FA, Proliferating cell protein Ki67, Ras, Rb1/E2F1, RDX (radixin), Sideroflexin-3, Sodium-hydrogen exchange regulatory cofactor NHE-RF2 (NHERF-2), Solute Carrier Family 26, Member 4 (SCL26A4), TECTA (tectorin alpha)

## IMMUNOLOGICAL

The immunologic Biomarkers provide insights into the body's response towards cancer, infectious diseases, immunization, immunodeficiency, allergies, asthma, autoimmunity, and others. These features can be studied from variety of biological specimens by using highly advanced and high throughput immune assay systems. And these biomarkers also help to understand the extent of disease progression and probability of positive prognosis for a wide range of diseases.

### PARAMETERS TESTED @ VIRINCHI

Antibodies to U1 ribonucleoprotein, Anti-DNA antibodies, Anti-HSP70 or anti cochlear antibody, Antinuclear antibodies (ANAs), Immunoglobulin (IgM) testing, Immunoglobulin E (IgE)

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# NOSE: BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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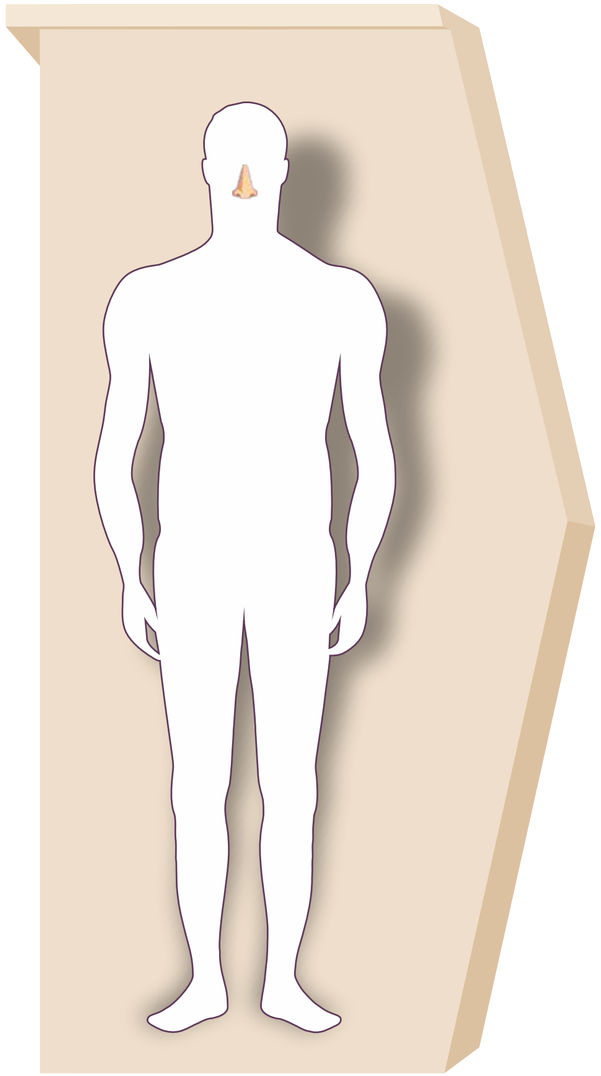

## BIOCHEMICAL

Many of the biological molecules including nucleic acids, proteins, lipids, fats and naturally occurring small chemicals that are formed due to metabolic and physiological activities serves as important contributors to understand the health of every organ and system in our body; and also help us to evaluate the nature and degree of disorderliness across systems and organs with the help of analytical, cytological, histochemical and immunological methodologies.

### PARAMETERS TESTED @ VIRINCHI

HDL, 27-hydroxycholesterol, 8-isoprostane, alpha 2 macroglobulin, Alpha-tubulin, bilirubin oxidative markers, carboxymethyl-lysine, Complete Blood Count (CBC), CRP (C-Reactive Protein), Cysteinyl leukotrienes, cytokeratins, ECP (eosonophil cationic protein), EDN (eosonophil derived neurotoxin), Eotaxin, Erythrocyte Sedimentation Rate (ESR), F2-isoprostane, G-CSF(Granulocyte-colony stimulating factor), GM CSF(Granulocyte-macrophage colony-stimulating factor), hydrogen peroxide, hydroxynonenal, IL-15(Interleukin-15), IL-1a(Interleukin-1α), IL-1b(Interleukin-1β), IL-7(Inteleukin-7), IL-9(Interleukin-9), iNOS( Inducible Nitric Oxide Synthase), LDL-C, lysozyme, malondialdehyde-lysine, MBP (major basic protein), MIP-1 alpha, MIP-1b(Macrophage inflammatory protein-1β ), N-acylethanolamines (NAEs), Nitirc oxide, Nitro tyrosine, Patch testing, Pentosidine, Prostaglandin, Serum Albumin, TNF-α tumor necrosis factor-alpha, Tryptase

## ELECTROPHYSIOLOGICAL

Electrodiagnostic biomarkers provide information on electrical activity (action potential) due to native or altered electrophysiology of cells and tissue or their response towards electrical stimuli (evoked potential). Typically, electrocardiography (ECG), electroencephalography (EEG), and electromyography (EMG) are employed to measure the electrical activity values and help to diagnose, evaluate, and treat the individual with impairments of the neurologic or neuromuscular or muscular systems.

### PARAMETERS TESTED @ VIRINCHI

Vibrating vocal folds-electroglottograph, Vomeronasal organ study-electrovomerography

## HISTOPATHOLOGICAL

Cytopathology and Histopathology observations of cells and tissue allow the understanding of gross structural, physiological and molecular changes at the cell and tissue level respectively. These microscopic observations with grading and staging are vital to understand the response of cells to due to external stimuli or DNA level changes which either might result into a transient change or pathological consequence requiring suitable surgical or medical or radiological therapy.

### PARAMETERS TESTED @ VIRINCHI

Angiocentric growth pattern in nasal lymphoma, Coagulative necrosis in nasal lymphoma, Infiltration by plasma cells and lymphocytes, Granulomatous or nongranulomatous vasculitis, Extravascular foci of necrosis

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## ANATOMICAL

Imaging techniques offer sensitive and precise visualization and also digitization of anatomical features of organs and systems of the body. It helps the patient or individual to undergo a gamut of pain free investigations, non-invasively. And these biomarkers can be measured using either radiological or non-radiological modalities such as, X-ray, CT, Ultrasonography, Electroencephalography, Magnetoencephalography, and Magnetic Resonance Imaging in order to provide us with either qualitative or quantitative measure of the anatomical features and physiological processes such as blood flow.

### PARAMETERS TESTED @ VIRINCHI

Mucosal thickening-X-ray; Concha bullosa-Paranasal Sinus X-ray; width of posterior nares-CT imaging; anterior bony width (ABW)-Axial CT; minimal soft tissue width (MMW); bony choanal aperture width (BCAW); nasopharynx vertical distance (NVD); vomerine width; width of pyriform aperture; Anterior mucosal width(AMW); Polypoid soft-tissue masses; Noninflammatory lesions; Opacified sinus with hyperdense contents; Maxillary buttresses; Ethmoid air cells

## PATHOGEN SCREENING

Pathogen screening helps to find out either presence or absence of all the relevant pathogenic microorganisms including - bacteria, fungi, viruses, mycoplasma and protozoans. This identification process allows the healthcare provider with specific information on every possible mode that can be implemented towards prevention, treatment and eradication. It also allows the physician to decide pathogen specific medication in suitable dosage and form for effective and safe elimination without causing any adverse effects to the affected patient.

### PARAMETERS TESTED @ VIRINCHI

Aspergillus, Bacillus species, Bordetella pertussis, Corynebacterium diphtheriae, Coxiella burnetii, Diphtheroids, Haemophilus influenza, Histoplasma capsulatum, Human herpesvirus-6 (HHV6), Influenza virus , Klebsiella pneumoniae, legionella pneumophila, Micrococci, Mucor, Mycobacterium bovis, Mycobacterium tuberculosis, Pneumocystis jiroveci , Respiratory Syncytial Virus (RSV), Rhizopus, Staphylococci, Staphylococcus aureus, Streptococcus pneumoniae, Streptococcus pyogenes

## PHENOTYPIC & GENETIC

Changes brought about to the DNA, RNA and their respective derivatives due to germline or somatic mutations influence an individual's overall existence and susceptibility or resistance towards a wide variety of disease causing infectious agents. Understanding the underlying molecular details with the help of advanced/next generation sequencing technologies provides insights into either devising a therapeutic or corrective intervention.

### PARAMETERS TESTED @ VIRINCHI

Alu, ANO3( Anoctamin 3), Aβ42, BMP4(Bone Morphogenetic Protein 4), CCDC65 gene(Coiled-Coil Domain Containing 65), c-Myc, CX26 gene(Gap junction beta-2 protein (GJB2)), CX30 gene(Gap junction beta-6 protein (GJB6)), delta F508(Cystic Fibrosis Transmembrane Conductance Regulator ΔF508), DHODH(Dihydroorotate dehydrogenase), DNAH11(Dynein Axonemal Heavy Chain 11), DNAH5(Dynein Axonemal Heavy Chain 5), DNAI1(Dynein Axonemal Intermediate Chain 1), DPP6(Dipeptidyl aminopeptidase-like protein 6), DRC1 gene(Dynein Regulatory Complex Subunit 1), DRC4 gene(Dynein Regulatory Complex Subunit 4), FAM19A5(Family With Sequence Similarity 19 Member A5, C-C Motif Chemokine Like), FGF10(Fibroblast Growth Factor 10), FGF2(Fibroblast Growth Factor 2), FGFR1 gene(broblast Growth Factor Receptor 1), Klf4(Kruppel Like Factor 4), KRT5(Keratin 5), Leucine-rich repeat kinase 2 (LRRK2), Methylenetetrahydrofolate reductase[MTHFR] and DNMT1, MUC (mucin) genes, MUC15 promoter, NANOG promoters( Nanog Homeobox), NELF gene (nasal embryonic LHDH factor), OCT4 promoters, PROK2 gene (prokinetin 2), PTPN11 gene, RANTES [CCL5(C-C Motif Chemokine Ligand 5)], SHH, Sox2, SPRR2A, Telomerase reverse transcriptase (TERT), TMEM132C, TTG, VEGFB, VIP, WNT3A

## IMMUNOLOGICAL

The immunologic Biomarkers provide insights into the body's response towards cancer, infectious diseases, immunization, immunodeficiency, allergies, asthma, autoimmunity, and others. These features can be studied from variety of biological specimens by using highly advanced and high throughput immune assay systems. And these biomarkers also help to understand the extent of disease progression and probability of positive prognosis for a wide range of diseases.

### PARAMETERS TESTED @ VIRINCHI

Antibodies for Aspergillus, Allergen-specific IgE Blood Testing, Antibody of Histoplasma, Antibody test of Legionella pneumophila , Antibody test of Mycobaterium tuberculosis, Antibody test of Pneumocystis jiroveci , IgE Testing, IgG Antibodies, IgM Antibodies, Pneumococcal Antibodies


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# THROAT: BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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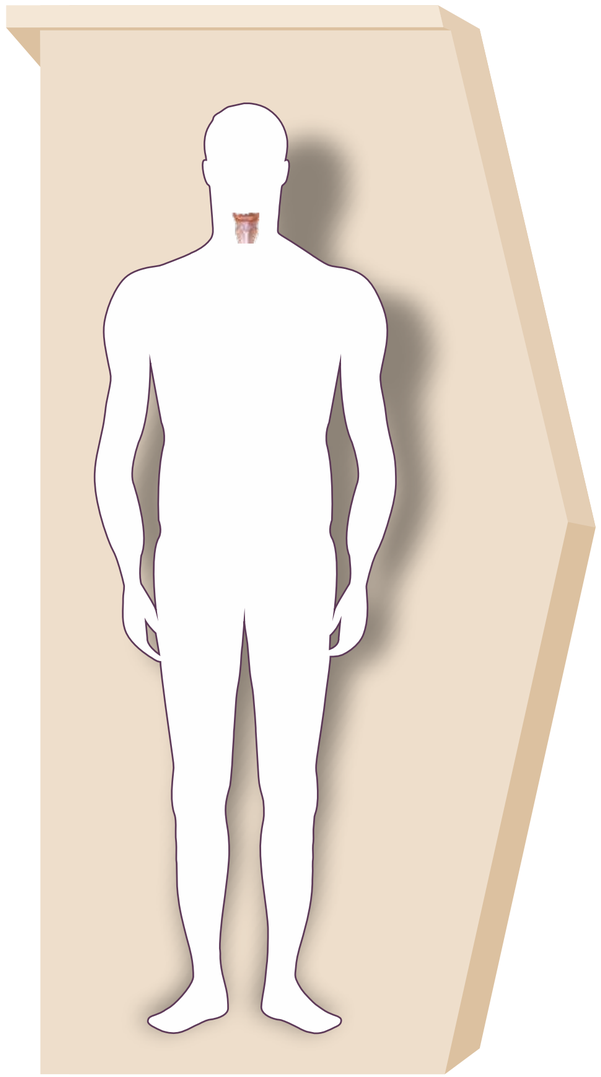

## BIOCHEMICAL

Many of the biological molecules including nucleic acids, proteins, lipids, fats and naturally occurring small chemicals that are formed due to metabolic and physiological activities serves as important contributors to understand the health of every organ and system in our body; and also help us to evaluate the nature and degree of disorderliness across systems and organs with the help of analytical, cytological, histochemical and immunological methodologies.

### PARAMETERS TESTED @ VIRINCHI

Epidermal growth factor receptor (EGFR), CEA, Ferritin , SCCA, CA-50, TPA, CA 19-9, Cathepsin B, AFP, Prolactin, Cyfra 21-1, E-caderin, MMP-2, MMP-9, MMP-13, EGF, EGFR, Mesothelin , RANTES, MIP-1 , IGFBP-1, E-selectin, G-CSF, Cytokeratin 19, VCAM , MMP-3, Galectin-1 , Galectin-3 , TIMP-1, TIMP-2, Beta 2-Microgobulin

## ELECTROPHYSIOLOGICAL

Electrodiagnostic biomarkers provide information on electrical activity (action potential) due to native or altered electrophysiology of cells and tissue or their response towards electrical stimuli (evoked potential). Typically, electrocardiography (ECG), electroencephalography (EEG), and electromyography (EMG) are employed to measure the electrical activity values and help to diagnose, evaluate, and treat the individual with impairments of the neurologic or neuromuscular or muscular systems.

### PARAMETERS TESTED @ VIRINCHI

Ultrasonography-guided fine-needle aspiration cytology

## HISTOPATHOLOGICAL

Cytopathology and Histopathology observations of cells and tissue allow the understanding of gross structural, physiological and molecular changes at the cell and tissue level respectively. These microscopic observations with grading and staging are vital to understand the response of cells to due to external stimuli or DNA level changes which either might result into a transient change or pathological consequence requiring suitable surgical or medical or radiological therapy.

### PARAMETERS TESTED @ VIRINCHI

Sentinel node biopsy; Histological completeness of excision margins of oral cavity; Degeneration of the basal layer of the epithelium in oral lichen planus; Multinucleated osteoclast-like giant cells in a background of mononuclear cells

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# THROAT: BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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## ANATOMICAL

Imaging techniques offer sensitive and precise visualization and also digitization of anatomical features of organs and systems of the body. It helps the patient or individual to undergo a gamut of pain free investigations, non-invasively. And these biomarkers can be measured using either radiological or non-radiological modalities such as, X-ray, CT, Ultrasonography, Electroencephalography, Magnetoencephalography, and Magnetic Resonance Imaging in order to provide us with either qualitative or quantitative measure of the anatomical features and physiological processes such as blood flow.

### PARAMETERS TESTED @ VIRINCHI

Tumor thickness; Size and multiplicity of lymph nodes; Perineural invasion (PNI); Recurrent aphthous like ulceration; ulcerative lesions

## PATHOGEN SCREENING

Pathogen screening helps to find out either presence or absence of all the relevant pathogenic microorganisms including - bacteria, fungi, viruses, mycoplasma and protozoans. This identification process allows the healthcare provider with specific information on every possible mode that can be implemented towards prevention, treatment and eradication. It also allows the physician to decide pathogen specific medication in suitable dosage and form for effective and safe elimination without causing any adverse effects to the affected patient.

### PARAMETERS TESTED @ VIRINCHI

Streptococcus pneumoniae, Streptococcus pyogenes, Neisseria meningitidis, Haemophilus influenzae , Fusobacterium necrophorum, Corynebacterium diphtheriae, Bordetella pertussis, Neisseria gonorrhoeae, Chlamydophila pneumoniae, Mycoplasma pneumoniae, Bacillus anthracis, Rhinovirus, coronavirus, respiratory syncytial virus , parainfluenza virus , Herpes simplex virus, Adenovirus, Epstein–Barr virus (EBV), Influenza virus

## PHENOTYPIC & GENETIC

Changes brought about to the DNA, RNA and their respective derivatives due to germline or somatic mutations influence an individual's overall existence and susceptibility or resistance towards a wide variety of disease causing infectious agents. Understanding the underlying molecular details with the help of advanced/next generation sequencing technologies provides insights into either devising a therapeutic or corrective intervention.

### PARAMETERS TESTED @ VIRINCHI

CDKN2A, MGMT, DAPK, H1C1 , TGFBR2 , RARB, DCC, TIMP3, CCNA1, CDH1, CCND2, ESR , MINT31, AIM, p16, GSTM1, GSTT1, GSTP1, XRCC1, cytochrome P450 gene CYP1A1, p15 , RASSF1A

## IMMUNOLOGICAL

The immunologic Biomarkers provide insights into the body's response towards cancer, infectious diseases, immunization, immunodeficiency, allergies, asthma, autoimmunity, and others. These features can be studied from variety of biological specimens by using highly advanced and high throughput immune assay systems. And these biomarkers also help to understand the extent of disease progression and probability of positive prognosis for a wide range of diseases.

### PARAMETERS TESTED @ VIRINCHI

Anti-p53; IL-6; IL-8; IFN-γ; IL-1R; IL-2R; IFN- a; IL-7; Streptococcal antibodies; influenza antibodies

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## ENT LASER SYSTEM


- Rapid and efficient treatment of tissue while limiting unwanted thermal effects
- Provides ENT surgeons with a portable KTP 532 nm laser system that is optimized for their clinical needs
- Used for the treatment of soft tissue/vascular lesions of the airway and larynx, including polyps and adhesions

## NOVEL IMPLANTABLE DELIVERY SYSTEM



- Offers controlled delivery of steroid medication directly to sinus mucosa
- Once implanted via endoscopic surgery, the bioabsorbable, drug-releasing stent expands to prop open the ethmoid sinus and assure patency
- Prevents obstruction of the ethmoid sinus after surgery, thereby improving postoperative outcomes and reducing the likelihood of adverse events related to additional procedures or administration of systemic steroids



RIGHT TO SCIENCE @ EAR, NOSE AND THROAT

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## FIAGON'S NAVIGATION SYSTEM

- Provides surgeons with flexibility and easier navigation of open or endoscopic (transnasal) ENT procedures
- Allow surgeons to significantly reduce the risk to patients of each intervention and shorten operation time by reducing the number of instrument changes
- Uses an electromagnetic tracking system to locate surgical instruments during an operation relative to a patient's CT scan
- Have a proprietary "chip on the tip" technology, including bendable instrumentation to reach challenging anatomy


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## Beauty is still Skin Deep

# DEPARTMENT OF DERMATOLOGY & COSMETOLOGY

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## FOREWORD

*The Department of Dermatology at Virinchi Hospitals offers comprehensive diagnostic and treatment modalities for conditions that affect the skin, hair and nails. The department is well-equipped with the latest technologies and offers advanced treatments in medical, surgical and cosmetic dermatology for a wide range of skin conditions ranging from common skin problems, skin allergies to complex skin issues like skin cancer.*

*The department also provides management, patient education, follow-up and treatment options for simple to complex dermatological complications and conditions*

*Department of Plastic & Cosmetic Surgery at Virinchi Hospitals provides a wide range of reconstructive and cosmetic surgery services for people who are in need of reconstructive surgery due to inheritance (congenital anomaly) or surgery or trauma;*

*Our specialists are experts in improving function, mobility, appearance and overall quality of life of adults and children. They are also specialized in the most advanced reconstructive transplant procedures, including arm, hand and face transplants.*

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# Dr. Naga Sridevi Kavangal

DDVL, DNB (DVD)

## Consultant Dermatologist & Cosmetologist

Dr. Naga Sridevi is a Consultant Dermatologist in the Department of Dermatology & Cosmetology at Virinchi Hospitals. She has overall five years' experience in dermatology. Prior to joining Virinchi Hospitals, she worked in the Department of Dermatology at Yashoda Hospitals. She is well-versed in Chemical Peels, Microdermabrasion, Lasers, Nail surgeries, Vitiligo surgeries, PRP, Radiofrequency for warts, Mole removal and other procedures.

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MEET OUR EXPERTS

# Dr. G.S.S Sandeep

MD, DVL

## Consultant Dermatologist

Dr. G.S.S. Sandeep is a Consultant Dermatologist and Cosmetologist at Virinchi Hospitals. He has five years of experience in the department of Dermatology and Cosmetology. Dr. Sandeep worked as consultant in couple of private clinics in Hyderabad.

He did his under graduate school from Mamatha Medical College in 2008 and completed post-graduation in M.D., D.V.L. from S.V.S. Medical College in 2012.

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# TREATMENTS AND THERAPIES OFFERED

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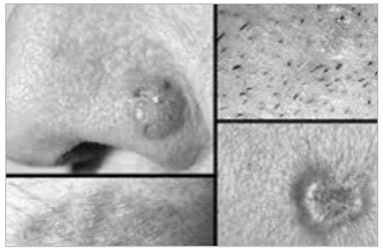
## MICRODERMABRASION

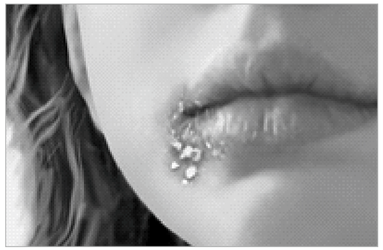
### UNIQUE FEATURES & BENEFITS

- Is Light weight, & easily transportable
- Contains special imported pump for durability & reliability
- Equipped with Vacuum control knob for precise setting of required suction
- Has Powder flow control system for fine adjustment of powder flow
- Can be used for all skin types
- Less recovery time

### DIAGNOSTIC AND THERAPEUTIC APPLICATIONS

- Pox marks
- Removal of Scars from accidents or disease
- Improving age spots and black heads
- Improving hyperpigmentation (patches of darkened skin)
- Exfoliating skin, resulting in a refreshed appearance
- Lessening the appearance of stretch marks
- Reducing fine lines and wrinkles
- Reducing or eliminating enlarged pores
- Treating acne and the scars left by acne





- Acne
- Actinic Keratoses
- Aging / Sun Damaged Skin
- Alopecia Areata
- Atopic Dermatitis / Eczema
- Basal Cell Carcinoma
- Calluses and Corns
- Cellulitis
- Common Conditions for Skin, Hair and Nails
- Cysts
- Dry Skin
- Fungal Infections of the Skin
- General Skin Care
- Hair Loss
- Impetigo
- Ingrown Hairs / Folliculitis
- Keloid (Scars)
- Keratosis Pilaris
- Lentigo (Age Spots)



# TREATMENTS AND THERAPIES OFFERED

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## ELECTROCAUTERY

### UNIQUE FEATURES & BENEFITS

- Insulated electrodes to minimize pains and skin damage
- Advantageous in rapid and painless operations
- Has linear intensity control
- Easily accessible to lesion areas by various electrodes
- Is Effective coagulator

### DIAGNOSTIC AND THERAPEUTIC APPLICATIONS

- Removal of skin lesions angiomas and pyogenic granulomas
- Acne
- Scar revision
- Telangiectasias
- Sebaceous hyperplasia
- Cherry hemangiomas

- Lichen Planus
- Lupus
- Melanoma
- Molluscum Contagiosum
- Nail Health
- Pityriasis Rosea
- Poison Ivy
- Psoriasis
- Rashes
- Rosacea
- Scabies
- Seborrheic Keratosis
- Shingles (Herpes Zoster)
- Skin Cancer
- Spider Veins
- Squamous Cell Carcinoma
- Vascular Birthmarks
- Vitiligo (Skin Pigment Disorders)
- Warts
- Tattoo Removal
- Yeast Infection
- Laser Hair Removal

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# TREATMENTS AND THERAPIES OFFERED

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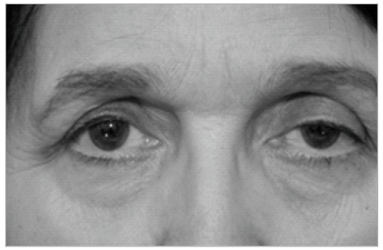
## FRACTIONAL RADIO FREQUENCY ABLATION

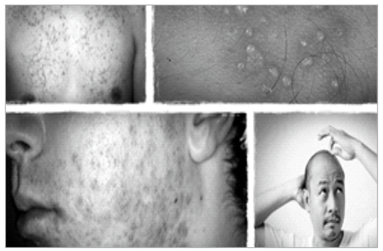
### UNIQUE FEATURES & BENEFITS

- Diode Laser Liposuction Using safe energy
- Implements the interaction of multiple RF source
- Controlled delivery of energy to the stratum corneum, epidermis and dermis
- Tiny electrodes deliver just enough energy to achieve the desired degree of ablation
- Multifunction device
- Non invasive
- Safe and effective

### DIAGNOSTIC AND THERAPEUTIC APPLICATIONS

- Acne
- Scars
- Vascular lesions
- Hyperpigmentation
- Skin lifting
- Skin tightening
- Cellulite reduction





- Laser Treatments
- Microdermabrasion & Chemical Peels
- Cool Sculpting
- Eyebrow Enhancements
- Photodynamic Therapy
- Skin Cancer Treatment – including Mohs' Micrographic
- Tattoo removal
- Vein Therapy Photodynamic Therapy
- Skin Cancer Treatment – including Mohs' Micrographic Surgery
- Eyelash Enhancements
- Laser Treatments
- General Skin Care
- Abdominoplasty (abdominal reduction)
- Augmentation mammoplasty (breast alteration, enlargement, lift or reduction)
- Blepharoplasty (eyelid rejuvenation)
- Brow lift
- Chin and neck fat removal
- Contouring of the abdomen, hips and limbs
- Contouring of the face
- Cosmetic orthognathic surgery (contouring of the jaws)

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# TREATMENTS AND THERAPIES OFFERED

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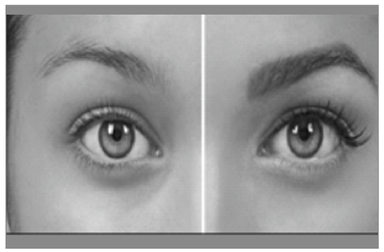
## WHOLE BODY PUVA

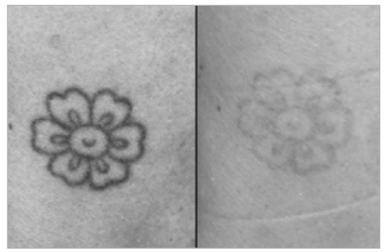
### UNIQUE FEATURES & BENEFITS

- High dosing capability affords quicker treatment times
- Long term reliability
- Enables an even illumination on the body in the treatment field
- Provided with all safety features with trippers and independent control for each panel
- Small space required (elegant & compact)
- Minimal heat development due to low current consumption
- Easy to service and assemble (modular design)
- Conveniently can be transferred to different locations

### DIAGNOSTIC AND THERAPEUTIC APPLICATIONS

- Psoriasis
- Dermatitis
- Vitiligo
- Polymorphic light eruption
- Cutaneous T-cell lymphoma





- Dermabrasion
- Genioplasty (contouring of the chin)
- Hair restoration
- Endoscopic cosmetic surgery
- Eyebrow and forehead rejuvenation
- Facial rejuvenation
- Face lift
- Laser skin resurfacing
- Liposuction (body fat removal)
- Otoplasty (alternation of the ears)
- Rhinoplasty (alternation of the nose)
- Refinement of facial features
- Scar revision
- Skin augmentation
- Tattoo removal
- Tooth restoration/alteration
- Ultrasonic lipoplasts
- Vascular blemishes/spider veins

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# SKIN: BIOMARKER BIG DATA FOR PERSONALIZED MEDICINE

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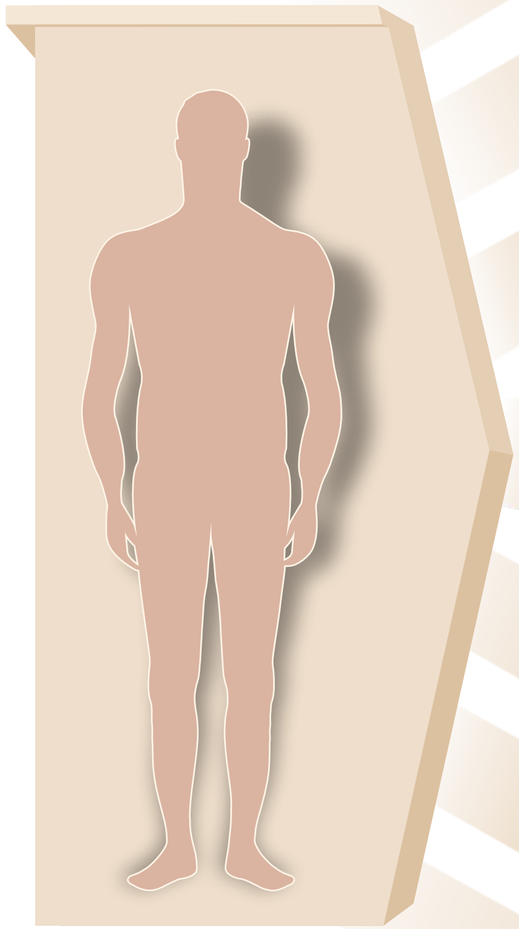

**B**IOCHEMICAL

**E**LECTROPHYSIOLOGICAL

**H**ISTOPATHOLOGICAL

**A**NATOMICAL

**P**ATHOGEN SCREENING

**P**HENOTYPIC & GENETIC

**I**MMUNOLOGICAL

## VIRINCHI'S PROPRIETARY BE-HAPPI™ DIAGNOSTICS FRAMEWORK


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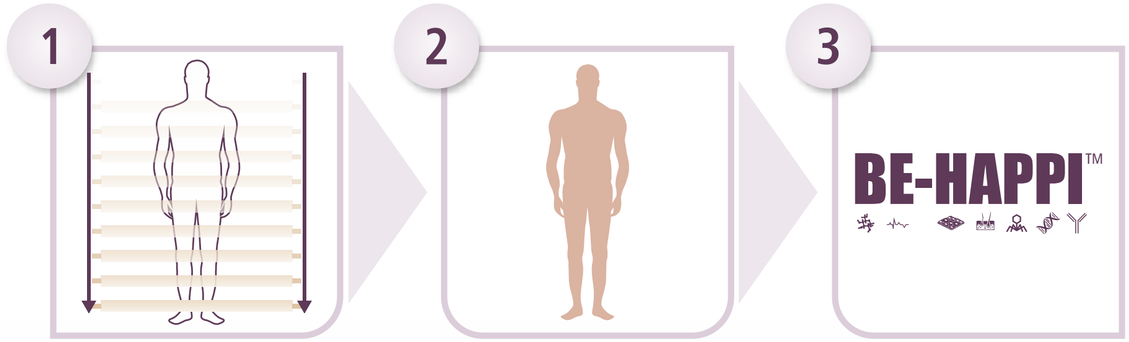


EVERY MEMBER UNDERGOES A MASTER HEALTH CHECK UPON JOINING

IF PROBLEM IN ORGAN DISCOVERED

VIRINCHI'S BE-HAPPI™ FRAMEWORK IS APPLIED TO THE ORGAN SYSTEM AND TREATMENT PLANNED ACCORDINGLY

Biomarkers are biological indicators that provide us with a means of understanding the relationship between measurable biological processes and clinical outcomes for evaluating health and wellness. Further, the study of biomarkers enables us to devise treatment options for all disorders and diseases since they enhance our understanding on physiology and anatomy of an individual.

Proper functioning of every organ and system in our body is essential for us to live a healthy and good quality of life as we progress through various phases of our life. Any deviation from performing one function may result in disordered physiological processes and will be associated with either symptomatic or asymptomatic disorder. If the disorder is manifested in the form of symptoms and signs, then it can be identified accurately with the help of specific diagnostics tests. However, asymptomatic disorders that typically do not show any clinical symptoms and signs could gradually lead to secondary complications affecting one or multiple systems that may be difficult to understand and treat

Therefore it is very essential to understand the health of all the organs and systems of our body irrespective of respective/overall disorderliness with or without any symptoms in order to understand thoroughly whether any function is impaired or progressing towards impairment with the help of comprehensive diagnostic tests. Virinchi's proprietary BE-HAPPI™ evaluates the health status of every organ and organ system from a biochemical, electrophysiological, histological and cytological, anatomical, pathogenic, phenotypic and genotypic, immunological perspectives. The influences of these factors on biomarker levels also indicate disorder's onset and/or its progression either as an independent or comorbid consequence.

With advanced and sophisticated technology housed in world-class infrastructure, and strong rooting in evidence-based medicine, Virinchi is well-positioned to undertake this comprehensive analysis to derive accurate and predictable diagnosis, thus enabling its physicians to devise individual-specific predictive, preventive and reactive therapies and interventions.


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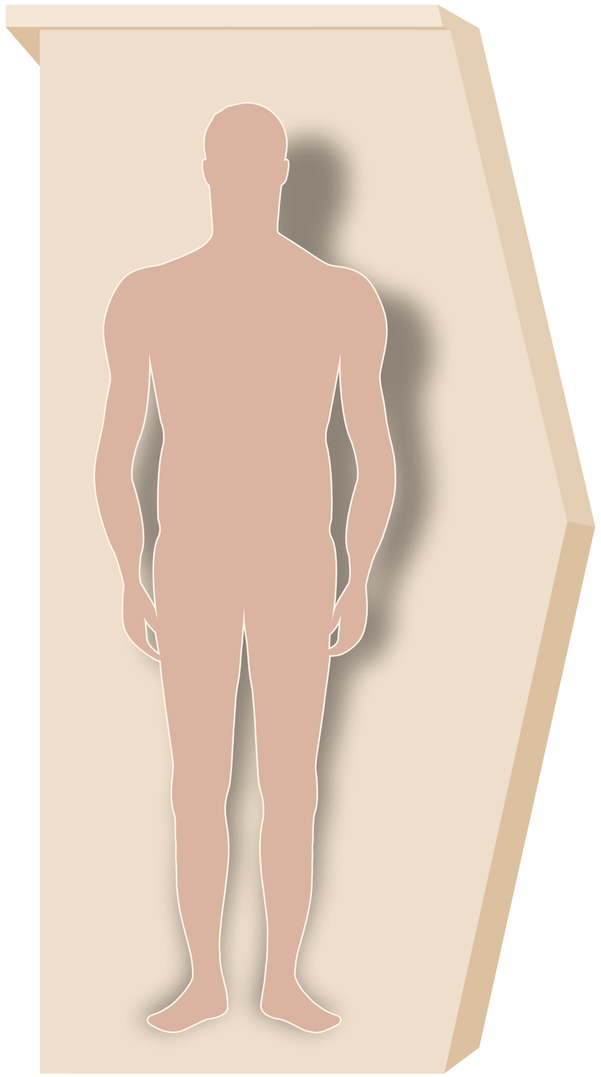

## BIOCHEMICAL

Many of the biological molecules including nucleic acids, proteins, lipids, fats and naturally occurring small chemicals that are formed due to metabolic and physiological activities serves as important contributors to understand the health of every organ and system in our body; and also help us to evaluate the nature and degree of disorderliness across systems and organs with the help of analytical, cytological, histochemical and immunological methodologies.

### PARAMETERS TESTED @ VIRINCHI

B Cell Activating Factor (BAFF), Bcl2-associated X protein (Bax), Bcl-extra large (Bcl-xL), Blood Malondialdehyde, C reactive protein(CRP) , CCL11, CCL17, CCL18, CCL20, Cholesterol, Glutathione peroxidase, Heparin binding protein 17 (HBP-17), Human cGVHD, IL-4, IL-6, Inhibitor of DNA binding 4 (ID4), Interferon alpha(IFN-alpha), Interferon(IFN-c), Interferon(IFN-γ), Interleukin 12(IL-12), Interleukin 13 (IL-13), Interleukin 15(IL-15), Interleukin 17(IL-17), Interleukin 2(IL-2), Interleukin 22(IL-22), Interleukin 23(IL-23), Interleukin 23p19(IL-23p19), Interleukin 23p40(IL-23p40), Interleukin 33(IL-33), Interleukin 8(IL-8), Interleukins 6(IL-6), MHC class I chain-related protein A (MICA), Nerve growth factor(NGF ), Oxidized low-density lipoprotein (Ox-LDL), Peptidase Inhibitor 3(PI3/elafin), Platelet-derived growth factor receptor(PDGFR), Polycomb complex group (PcG) proteins, S100 Calcium Binding Protein A11(S100A11) , S100 calcium binding protein A8(S100A8), S100 calcium-binding protein A2(S100A2), Thiobarbituric acid , Toll-like receptor 8 (TLR8), Triglycerides, Tumor necrosis Factor alpha(TNF-alpha)

## ELECTROPHYSIOLOGICAL

Electrodiagnostic biomarkers provide information on electrical activity (action potential) due to native or altered electrophysiology of cells and tissue or their response towards electrical stimuli (evoked potential). Typically, electrocardiography (ECG), electroencephalography (EEG), and electromyography (EMG) are employed to measure the electrical activity values and help to diagnose, evaluate, and treat the individual with impairments of the neurologic or neuromuscular or muscular systems.

### PARAMETERS TESTED @ VIRINCHI

Skin electrode impedance, Skin electrical activity:, Skin conductance and skin potential-electrodermograph (EDG), Skin resistance-electrodermograph (EDG)

## HISTOPATHOLOGICAL

Cytopathology and Histopathology observations of cells and tissue allow the understanding of gross structural, physiological and molecular changes at the cell and tissue level respectively. These microscopic observations with grading and staging are vital to understand the response of cells to due to external stimuli or DNA level changes which either might result into a transient change or pathological consequence requiring suitable surgical or medical or radiological therapy.

### PARAMETERS TESTED @ VIRINCHI

melanocytic nevi and melanomas-confocal microscope; nuclear pleomorphism; increased vascularity in the superficial dermal compartment; honeycomb-like signal-free structures; signal-free cavities in the upper dermis

## PATHOGEN SCREENING

Pathogen screening helps to find out either presence or absence of all the relevant pathogenic microorganisms including - bacteria, fungi, viruses, mycoplasma and protozoans. This identification process allows the healthcare provider with specific information on every possible mode that can be implemented towards prevention, treatment and eradication. It also allows the physician to decide pathogen specific medication in suitable dosage and form for effective and safe elimination without causing any adverse effects to the affected patient.

### PARAMETERS TESTED @ VIRINCHI

Candida albicans, Clostridium spp, Epidermophyton, Herpes simplex virus (HSV), Herpes zoster (shingles) , Human papillomavirus (HPV), Malassezia furfur, Microsporum, Mycobacterium leprae (M. leprae), Poxvirus, Staphylococcus aureus , Streptococcus pyogenes , Trichophyton

## IMMUNOLOGICAL

The immunologic Biomarkers provide insights into the body's response towards cancer, infectious diseases, immunization, immunodeficiency, allergies, asthma, autoimmunity, and others. These features can be studied from variety of biological specimens by using highly advanced and high throughput immune assay systems. And these biomarkers also help to understand the extent of disease progression and probability of positive prognosis for a wide range of diseases.

### PARAMETERS TESTED @ VIRINCHI

Antibody to neutrophil cytoplasmic Antigens(ANCA), Anti-calpastatin Antibody , AntiNUCLEAR AntiBODIES TESTING, Anti-oxidised LDL Antibody, Candida albicans IgE, FTA-Abs test (fluorescence treponema Antibody absorption test), Immunoglobulin A (IgA) test, Lupus Anticoagulants(La) Antibody tests, Ro Antibody tests, Streptozyme, Tissue Anti-oxidised LDL Antibody, Trichophyton Ig E

## ANATOMICAL

Imaging techniques offer sensitive and precise visualization and also digitization of anatomical features of organs and systems of the body. It helps the patient or individual to undergo a gamut of pain free investigations, non-invasively. And these biomarkers can be measured using either radiological or non-radiological modalities such as, X-ray, CT, Ultrasonography, Electroencephalography, Magnetoencephalography, and Magnetic Resonance Imaging in order to provide us with either qualitative or quantitative measure of the anatomical features and physiological processes such as blood flow.

### PARAMETERS TESTED @ VIRINCHI

skin vascular lesions-Optical coherence tomography; altered skin architecture-Optical coherence tomography; disarrangement of the epidermis and upper dermis-Optical coherence tomography; The icicle-shaped structures (Melanoma of skin)-OCT; solid lesions (BCCs or malignant melanomas)-high frequency ultrasound; changes in water content-Terahertz pulsed imaging; Measuring the mobility of water-MRI; 18F-FDG PET

## PHENOTYPIC & GENETIC

Changes brought about to the DNA, RNA and their respective derivatives due to germline or somatic mutations influence an individual's overall existence and susceptibility or resistance towards a wide variety of disease causing infectious agents. Understanding the underlying molecular details with the help of advanced/next generation sequencing technologies provides insights into either devising a therapeutic or corrective intervention.

### PARAMETERS TESTED @ VIRINCHI

7-dehydrocholesterol reductase(DHCR-7), ABCA12 gene mutations, ADAM metallopeptidase domain 17(ADAM17), Arachidonate 12-lipoxygenase, 12R type(ALOX12B), Arachidonate Lipoxygenase 3(ALOXE3), Ataxin 2-binding protein 1 (A2BP1), Bak, BCL7a, Bcl-X, BRN-2, C-C Motif Chemokine Ligand 22(CCL22), Connexins 26, Connexins 30, Cystatin A (CSTA) gene mutations, Cytochrome P450 Family 4 Subfamily F Member 22(CYP4F22), Dimethylarginine Dimethylaminohydrolase 2(DDAH2), Fas cell surface death receptor(FAS), Fibroblast growth factor receptor(FGFR), Filaggrin(FLG), Guanine nucleotide binding protein 15 (GNA15), H3K4 methyltransferase, Heat-shock proteins 27, Heat-shock proteins 60, HLA-Cw6, Interleukin 12 B(IL-12B), Interleukin 23R(IL-23R), keratin 16 (KRT16), Keratin Gene Screening, Membrane Bound Transcription Factor Peptidase, Site 2(MBTPS2) , Metaxin gene(MTX), Methylguanine methyltransferase (MGMT), Mitogen-activated protein kinase kinase 3(MAP2K3/PRKMK3), NIPA Like Domain Containing 4(NIPAL4), Pituitary adenylate cyclase-activating peptide-38(PACAP-38), Protein Tyrosine Phosphatase, Receptor Type G(PTPRG), Psoriasis Susceptibility 2(PSORS2), Ras-GTPase activating protein (GAP)-binding protein (G3BP), Sequence-Tagged Site(STS) Gene, Small inducible cytokine A2(SCYA2), Suppressor of cytokine signaling 3(SOCS3), Tet Methylcytosine Dioxygenase 2(TET2), Th1/IFN (CXCL10), TP73, Transglutaminase 1(TGM1)

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## IVERMECTIN CREAM


- Ivermectin Cream is for once-daily topical treatment of inflammatory lesions, or bumps and pimples, of rosacea
- Indicated for Rosacea, a common inflammatory and vascular disorder affecting the face
- Also indicated in conditions like redness, visible blood vessels, bumps, and pimples typically appear in the middle of the face (forehead, nose, cheeks) after age 30 in men and women

## PROPRANOLOL HYDROCHLORIDE ORAL SOLUTION


- Propranolol Hydrochloride oral solution is the first and only approved treatment for "proliferating infantile hemangioma requiring systemic therapy"
- Is an oral solution specially developed for safe and effective use in children
- Is alcohol-free, sugar-free and paraben-free



RIGHT TO SCIENCE @ DERMATOLOGY & COSMETOLOGY

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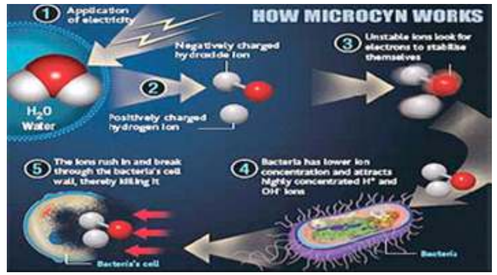
## MICROCYN TECHNOLOGY

- HOCl (hypochlorous acid)
- HOCl is a molecule produced naturally in the body by our immune system, specifically our neutrophils
- HOCl has been used for years on millions of patients around the world, treating wounds and other inflammatory dermal irritations

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