Dr Oroscope

non invasive medical device

SNP genotyping, personalized medicine with molecular evidence

for prevention of oral cancer

विज्ञान एवं प्रौद्योगिकी मंत्रालय
MINISTRY OF SCIENCE AND TECHNOLOGY
सत्यमेव जयते

DST/NSTMIS/05/222/2017-18

CDSCO

No.29/Misc./03/2020-DC(228)
RAAMAH-Medch-TE/M/MD/015142

Patent grant

IEC Quality and safety certification

The Present Device Dr Oroscope is an Indigenous Device made in India, which is hand held portable intra oral medical device with a source of illumination , emitting specific wavelengths of light for screening various diseases.

Dr Oroscope

is to provide cost effective solution for oral cancer screening

Product

- First of its kind economical & indigenously developed by medtech startup Raamah Bio care Pvt., Ltd. in Hyderabad, Telangana, India
- Approved for funding By DST under the category of Commercially Viable Academic project
- **Approved by DCGI/CDSCO**
- Validation studies are being done at MNJ Institute of Oncology, SVSIDS Mahabubnagar, and Various private clinics and colleges
  Patent filed & Published (India, USA, china)
- **Patent Granted in India** (Serial No. 153275)
- Identifies oral cancer and other potentially malignant Disorders
- A visible light based device which depends on auto-fluorescence property of the mucosal tissue.
- Non invasive – does not involve injecting/penetrating the body tissues
- Device will greatly improve the chances of early detection and treatment of oral cancer
- Easy to use even for a non-dentist/oncology expert with minimal training

- This device comes at a fraction of the cost of existing devices currently available in market which are very expensive and are imported.

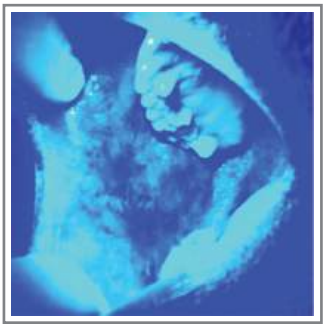
Other Features

- Other features like cavity detection (diseases)
- Software application processing for ease of usage for non-dentists
- Images can be stored in connected android device of tab or computer
- Tele medicine facility

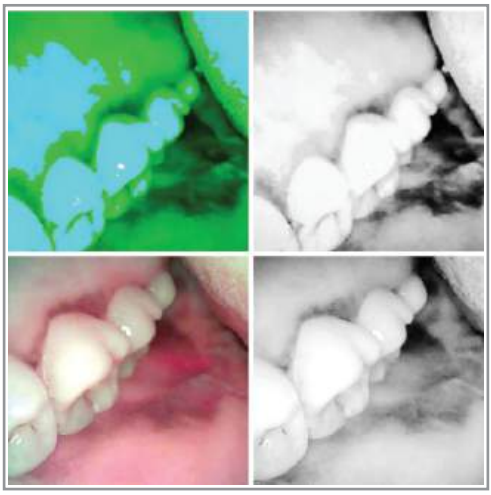
Dr Oroscope

Small head facilitates imaging of hidden areas of the Oral cavity

The intensity adjustability of the light gives additional advantage to the device in oral cavity where reflection with saliva and adjacent teeth is a common scenario.



clinical Image and Image of the lesion Under the influence of Blue light, we can appreciate the difference in the extent of the lesion under white light and blue light. The blue light used with low intensity.



Clinical Image and Blue light image with High intensity of light, Both Images are filtered for better appreciation

The narrow and mini head of the device can be inserted in to the oral cavity even in restricted mouth opening conditions such as OSMF and Squamous cell carcinomas to allow better visualization even in hidden areas of the oral cavity.

The HD camera with 5MP will enables visualizations more clearly.

Lesion in Retro molar region with other oral cancer screening devices with larger head and extra oral imaging

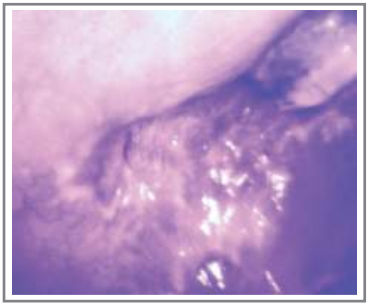
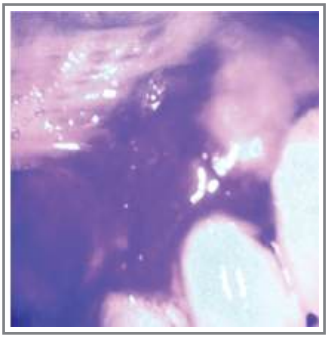


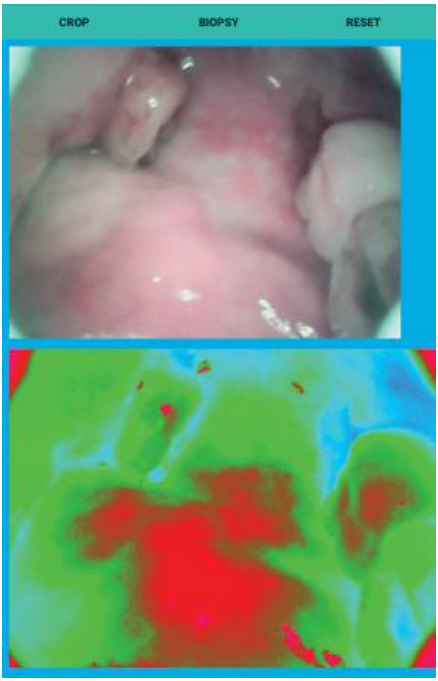
Image of the lesion with smaller head and camera in the device after filtering

With Low intensity of light, with high intensity of light , we can appreciate the reflection with enamel which is adjacent to the lesion, thus masking some part of the lesion



same lesion with the camera in the device with low intensity of light

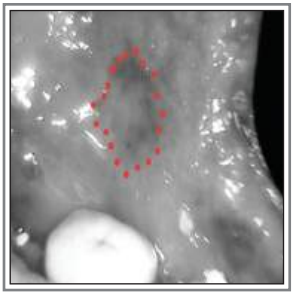
The diagnosis by the software of this device depends on the images taken under the influence of purple and green amber lights. Image captured Under the influence of purple wavelength will show the absorption of the light by damaged FAD, Collagen etc..,, even hemoglobin will absorb blue/ purple light. green amber light is absorbed by hemoglobin and which will not have effect on other flourphores, which have influence in dysplastic lesions thus software can differentiate between inflammatory and dysplastic lesion with image analysis by comparing two images under the influence of both lights. The software also uses the history of the patient and image characteristics of the lesion through feature extraction to give AI based diagnosis as some diagnosis are based on the features of the tissue along with the case history.



Grading of Dysplasia can be done with the help of software filters

Case of Pigmentation

Clinical Image



After filtering

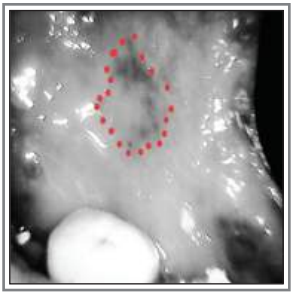


Image with influence of Blue light after filtering, we can appreciate enhanced clarity

Case of Apthous Ulcer

Clinical Image

Filtered Image

Blue Light Image

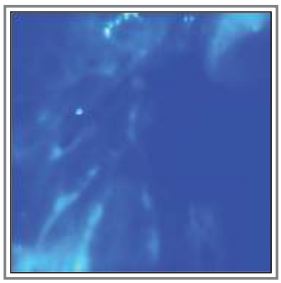
Blue light Image filtered

Device has given the diagnosis as Benign

Case of Lichen planus

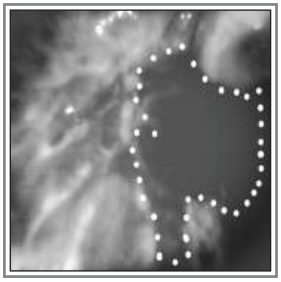
Image with green amber light

Filtered Image



Blue light Image with Low intensity and without filter

Device has given the Diagnosis as Mild Dysplastic, the lesion has cured later with the medication, patient is still under follow up



Case of Carcinoma of the floor of the mouth

Image Under white light

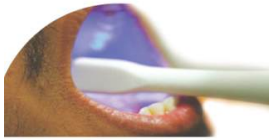
Filtered Image

Image with Blue light

A case of established carcinoma and Operated at MNJ Institute of Oncology.

FLOW CHART

Device



Device
while screening

software process
at point of
care for Diagnosis

Medication &
Follow up

Refer to tertiary
care facility

Upload the Data

Diagnosis
&
Tele Medicine

Medication &
Follow up

SNP Genotyping with Personalized medicine

"it is far more important to know what person the disease has than what disease the person has"

HIPPOCRATES

Now what we do...

Give symptomatic, immunomodulators, anti oxidants for treating follow up whenever symptoms appear, cannot predict malignant transformation.

What we can do...

Evidence based effective natural compounds to prevent malignant transformation

Pharmacogenomics is the study of how an individual's genetic inheritance affects the body's response to drugs. The term comes from the words pharmacology and genomics and is thus the intersection of pharmaceuticals and genetics.

Advances in molecular medicine have spawned the newer field of pharmacogenomics, which seeks to understand all of the molecular underpinnings of drug response.

- shifting emphasis in medicine from reaction to prevention.
- enabling the selection of optimal therapy and reducing trial-and-error prescribing.
  making the use of drugs safer by avoiding adverse drug reactions.
- increasing patient compliance with treatment
- reducing the overall cost of health care
- new tools to decode the human genome more rapidly and accurately using physically smaller
- yet more powerful machines.
  large-scale studies and sample repositories that help link genetic variations to disease
- across many countries and continents.

real-world examples of hospitals, regional health care systems, and educational institutions promoting clinical adoption of PM through research, clinical practice, and medical education reform.

various natural compounds showing most negative binding energy with the causative SNP than the current chemotherapeutic drugs. The compound which is very affective for a particular disease with a particular SNP is not very affective for same disease with another SNP. This can answer the question why the same drug will not show equal affect in different individuals with same disease.

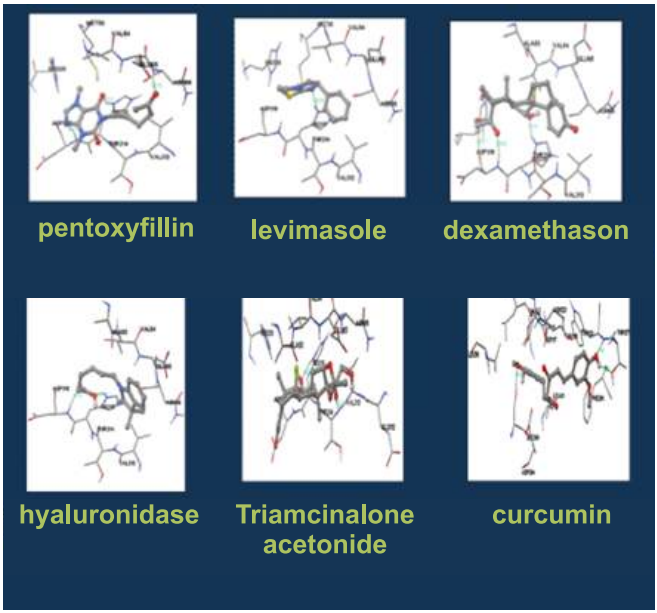
For example, an OSMF patient treated with Curcumin showed good binding and prognosis when SNP involved was cytochrome 450, whereas on the other hand the same Curcumin was ineffective when SNP involved was HSP 47.

HSP 47

S.No.	Interacting amino acids	Binding energy ΔG (Kcal/Mol)	Dissociation constant (kl) (μM)
Pentoxyfylline	Asn66, His315, Asp316	-5.01	213.500
Levamisole	His315	-5.21	152.52
Dexamethasone	His315, Asp316(2)	-5.51	92.07
Hyaluronidase	His315, Asp316	-4.87	270.82
Triamcinolone acetonide	Thr314, His315	-6.16	30.67
Curcumin	Trp128, Ser399, Thr127	-2.01	33.84

ıble 1: Binding energy, interacting amino acids of six drugs.

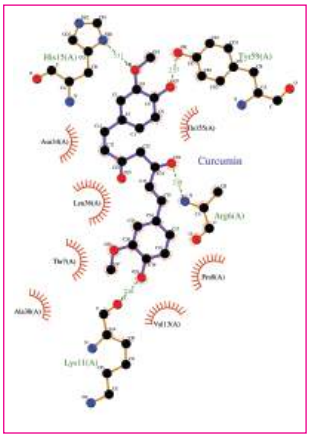
Binding of the protein with various drugs

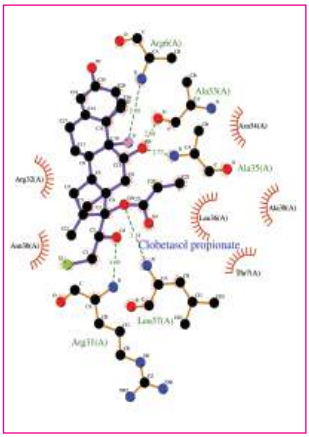


Binding of Curcumin is better than regular Chemotherapeutic drugs which are used to treat Lichenplanus case, when involved gene is TNF alpha238

Compound number	Binding energy ΔG (kcal/mol)	Dissociation constant (kl)	Interacting amino acids
Curcumin	-6.34	22.51 μ	MArg6, Lys11, His15, Tyr59
Clobetasol propionate	-6.09	34.32 μM	Arg6, Ala33, Arg31, Ala35, Leu37
Triamcinolone	-5.78	58.37 μM	Arg6, Arg32, Ala33, Ala35, Leu379(2)
Tritinoin	-5.44	103.07 μM	Asn34

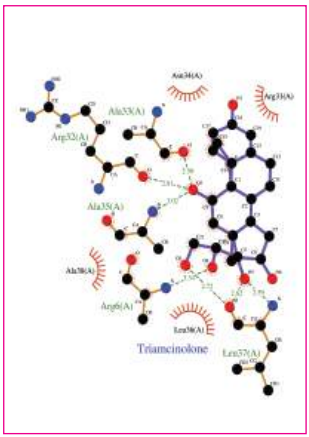
Curcumin





Clobetasol propionate

Triamcinolone

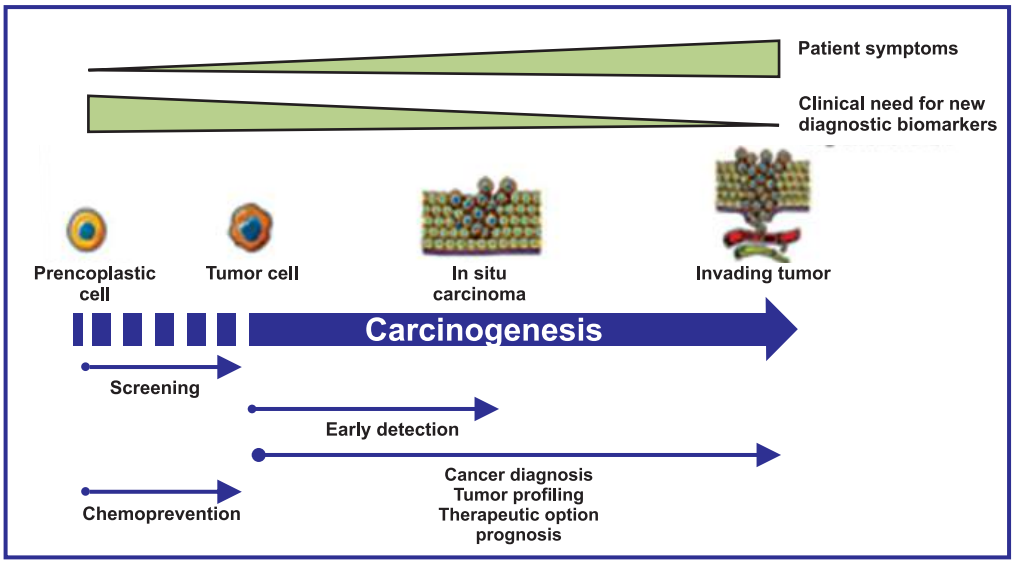


Tritinoin

Osmf with Ulceration treated with Curcumin

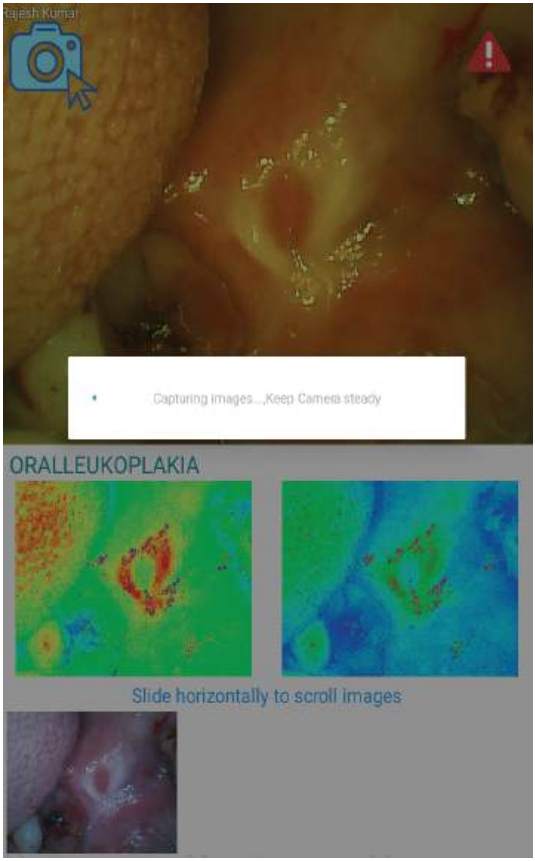
Pre treatment Image

After two weeks of treatment with Curcumin, SNP Detected was TNF alpha 238 in this case.



Received appreciation by Dr. Newell Johnson, Professor emeritus Griffith University AUSTRALIA. Visiting Professor King's College. LONDON for presentation on Dr. Oroscope device at Bhubhaneshwer.

Real Time AI Prediction



Sample reports generated at point of care

OROSCOPE REPORT-by RAAMAH-BIOCARE

Personal and Case Details

Name:	xxxxxxxx
Age:	42
Date:	2025-03-11'20:11:10'
Case No:	25
Case ID:	7569
Address:	Nadargul
Health:	good

ExaminationDetails

Ulcer:	NAD
Patches and Lines:	White patch
Pigmentation:	NAD
Growth:	NAD
Mucosa texture:	N/A
Symptoms:	pain,unable to open mouth
Habits:	tobacco
Sharp teeth:	
Areas involved:	Buccal mucosa

Diagnosis and Recommendations

Provisional Diagnosis:	OSMF
Differential Diagnosis:	BURNING MOUTH SYNDROME & ORAL LEUKOPLAKIA
Advice:	Advise symptomatic treatment and follow-up.Refer toa specialist.

Region of Interest(ROI) Imaging
ROI1,Buccal mucosa | ROI2,Buccal mucosa | Biopsy area

RISK INDEX: 4

RISK INDEX 0	Normal
RISK INDEX 1	Variable diagnosis observe for two weeks.
RISK INDEX 2	Minor problem need follow-up.
RISK INDEX 3	Minor problem need specialist consultation.
RISK INDEX 4	Suggestive of dysplasia refer to specialist.
RISK INDEX 5	Dysplasia? Refer to specialist.

OROSCOPE REPORT-by RAAMAH-BIOCARE

Personal and Case Details

Name:	xxxxxxxxxxxx
Age:	72
Date:	2025-03-05'19:24:56'
Case No:	18
Case ID:	6472
Address:	dsnr
Health:	good

Examination Details

Ulcer:	NAD
Patches:	Red patch and white lines
Pigmentation:	NAD
Growth:	NAD
Mucosa texture:	N/A
Symptoms:	burning sensation
Habits:	No habit
Sharp teeth:	
Areas involved:	Buccal mucosa

Diagnosis and Recommendations

Provisional Diagnosis:	ORAL LICHEN PLANUS
Differential Diagnosis:	SPECKLED LEUKOPLAKIA & CANDIDIASIS& OSMF
Advice:	SYMPTOMATIC TREATMENT & FOLLOW UP IS MUST

Region of Interest(ROI)
ROI1, Buccal mucosa | ROI2,Buccal mucosa | Biopsy area

RISK INDEX: 2

RISKINDEX0	Normal
RISKINDEX1	Variable diagnosis observe for two weeks.
RISKINDEX2	Minor problem need follow up.
RISKINDEX3	Minor problem need specialist consultation.
RISKINDEX4	Suggestive of dysplasia refer to specialist.
RISKINDEX5	Dysplasia? Refer to specialist.

> "Deaths from cancer are, at least in theory totally preventable, The trick is to identify those individuals who are at risk"
>
> **Bert Vogelstein**
> American Oncologist
> Howard Hughes
> Medical Institute Investigator at John Hopkins

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