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समाचार पत्रों से चयित अंश
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CONTENTS

DRDO News

DRDO Technology News

The Hitavada

Sun, 23 May 2021

Solar Industries to deliver first lot of 40,000 grenades to Indian Army

By Niraj Chinchkhede

Central Government's bold decision to open up the ammunition manufacturing sector for private agencies is paying rich dividends as the Indian Army is all set to receive the first consignment of high quality grenades manufactured by Nagpur-based Economic Explosives Limited. It is for the first time in the Indian history a private company is manufacturing ammunition for the Armed Forces. Economic Explosives Limited, a subsidiary of Solar Industries India Limited, was recently awarded the contract of manufacturing 10 lakh grenades worth Rs 400 crore for the Indian Army. The first consignment of 40,000 Multi-Mode Hand Grenades (MMHG) will replace the British era vintage hand grenades being used by the country's Army till date.

Multi Mode Hand Grenade

Armed Forces in many Commonwealth Nations, including India, are still using the vintage hand grenades designed by the British way back in 1915. The new MMHG is designed jointly by the Terminal Ballistics Research Laboratory (TBRL), a laboratory of the Defence Research and Development Organisation (DRDO) and Economic Explosives Limited. Anmol Rathi, Deputy General Manager of the company, told 'The Hitavada' on Saturday that a team of senior officers of DRDO and other concerned agencies would soon conduct a pre-delivery inspection of the consignment and pave way for material dispatch. It will happen within the next 8 to 10 days, he said. Highlighting the salient features of the MMHG, Rathi said that the grenades offer numerous advantages to soldiers in terms of safety and lethality compared to the vintage hand grenades. The new grenades come with dual mode – defensive and offensive. In defensive mode, the grenade is assembled with its fragmenting sleeve.

This mode is used while the soldier is in shelter and the enemy is in the open area. Its lethal radius is achieved up to eight meters from the point of burst. In the offensive mode, the grenade is without its fragmenting sleeve and is used for low intensity conflict as it offers stunning effect. The mode is used when the soldier is in attacking mode and its lethal radius is up to five meters from the point of burst. Besides, they are lightweight and can be primed and unprimed many times without affecting the functional efficiency. Until a decade ago, ammunition manufacturing was in the sole domain of Government agencies and it was beyond the imagination that the private sector could foray into this field. But the glass ceiling was broken by Solar Group in the year 2015 by entering into the field of ammunition manufacturing for defence.

Indonesia to buy grenades from Solar Industries

Impressed by the safety and lethality of Multi Mode Hand Grenades, many foreign countries are showing interest in the product made by the Indian private company. Some have already started negotiations while Indonesia is the first foreign nation to place an order for the grenades. The Government of India has recently given in-principle approval to Economic Explosives Limited to supply the grenades to Indonesia.

MULTI MODE HAND GRENADE

System Description

Economic Explosives Limited, a subsidiary of Solar Industries India Ltd., Nagpur, has successfully established production of Multi Mode Hand Grenade as per TOT obtained from TBRL (DRDO).

Multi Mode Hand Grenade as a replacement of the vintage Hand Grenade M 36, offers numerous advantages to the Soldier in terms of Safety, Dual Mode capability and Lethality.

Multi Mode Hand Grenade offers the following advantages :

- Twin Delay Tubes provided to ensure High Reliability.
- Additional safety to the soldier through minimum 0.5 Sec Arming Delay.
- Battle field supremacy to the soldier with dual mode capability: **'Defensive Mode'** & **'Offensive Mode'** through quick change.
- 3800 numbers of fragments with uniform fragmentation pattern for higher Lethality.

https://www.thehitavada.com/Encyc/2021/5/23/Solar-Industries-to-deliver-first-lot-of-40-000-grenades-to-Indian-Army.html

COVID 19: DRDO's Contribution

Press Information Bureau
Government of India

Ministry of Defence

Fri, 21 May 2021 3:56PM

DRDO develops COVID-19 antibody detection kit

Defence Institute of Physiology and Allied Sciences (DIPAS), a laboratory of Defence Research and Development Organisation (DRDO), has developed an antibody detection-based kit 'DIPCOVAN', the DIPAS-VDx COVID-19 IgG Antibody Microwell ELISA for sero-surveillance. The DIPCOVAN kit can detect both spike as well as nucleocapsid (S&N) proteins of SARS-CoV-2 virus with a high sensitivity of 97 per cent and specificity of 99 per cent. The kit has been developed in association with Vanguard Diagnostics Pvt Ltd, a development and manufacturing diagnostics company based at New Delhi.

The DIPCOVAN kit was developed indigenously by the Scientists, followed by extensive validation on more than 1,000 patient samples at various COVID designated hospitals in Delhi. Three batches of the product were validated during last one year. The antibody detection kit is approved by Indian Council of Medical Research (ICMR) in April 2021.

In May 2021, the product received the regulatory approval from the Drugs Controller General of India (DCGI), Central Drugs Standard Control Organisation (CDSCO), Ministry of Health and Family Welfare, to manufacture for sale and distribution.

DIPCOVAN is intended for the qualitative detection of IgG antibodies in human serum or plasma, targeting SARS-CoV-2 related antigens. It offers a significantly faster turn-around-time as it requires just 75 minutes to conduct the test without any cross reactivity with other diseases. The kit has a shelf life of 18 months.

Industry partner Vanguard Diagnostics Pvt. Ltd will commercially launch the product during the first week of June 2021. Readily available stock at the time of launch will be 100 kits (approx. 10,000 tests) with a production capacity of 500 kits/month after the launch. It is expected to be available at about Rs 75 per test.

The kit will be very useful for understanding COVID-19 epidemiology and assessing an individual's previous SARS-CoV-2 exposure.

Raksha Mantri Shri Rajnath Singh has appreciated the efforts of DRDO and the industry in developing the kit at the time of need.

Secretary Department of Defence R&D & Chairman DRDO Dr G Satheesh Reddy complimented the teams involved in developing the kit and said the initiative will help the people during the pandemic.

https://pib.gov.in/PressReleasePage.aspx?PRID=1720604

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 21 May 2021 3:56PM

डीआरडीओ ने कोविड-19 एंटीबॉडी पहचान किट विकसित की

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) की प्रयोगशाला डिफेंस इंस्टीट्यूट ऑफ फिजियोलॉजी एण्ड एलायड सांसेज (डीआईपीएएस) ने सीरो-निगरानी के लिए एंटीबॉडी पहचान आधारित किट 'डिपकोवैन', डीपास-वीडीएक्स कोविड-19 IgG एंटीबॉडी माइक्रोवेल एलिसा विकसित की है। डिपकोवैन किट 97 प्रतिशत उच्च संवेदनशीलता और 99 प्रतिशत विशिष्टता के साथ सार्स सीओवी-2 वायरस के स्पाइक के साथ-साथ न्यूक्लियोकैप्सिड (एस एंड एन) प्रोटीन दोनों का पता लगा सकती है। किट नई दिल्ली की कंपनी वैनगार्ड डायग्नोस्टिक्स प्राइवेट लिमिटेड के सहयोग से विकसित की गई है।

डिपकोवैन किट स्वदेश में वैज्ञानिकों द्वारा विकसित की गई है और बाद में दिल्ली में निर्दिष्ट अस्पतालों में 1,000 से अधिक मरीज नमूनों पर इसका व्यापक सत्यापन किया गया है। उत्पाद के तीन बैचों पर सत्यापन का काम पिछले एक वर्ष के दौरान किया गया। इस किट को अप्रैल, 2021 में भारतीय चिकित्सा अनुसंधान परिषद (आईसीएमआर) द्वारा मंजूरी दी गई।

इस उत्पाद को बिक्री और वितरण के लिए बनाने की नियामक मंजूरी मई 2021 में भारत के औषधि महानियंत्रक (डीसीजीआई), केंद्रीय औषधि मानक नियंत्रण संगठन (सीडीएससीओ), स्वास्थ्य और परिवार कल्याण मंत्रालय द्वारा दी गई।

डिपकोवैन का उद्देश्य मानव सीरम या प्लाज्मा में गुणात्मक दृष्टि से IgG एंटीबॉडी का पता लगाना है जो सार्स सीओवी-2 से संबंधित एंटीजेन लक्षित करता है। यह काफी तेज़ टर्न-अराउंड-टाइम प्रदान करता है क्योंकि अन्य बीमारियों के साथ किसी भी क्रॉस रिएक्टिविटी के बिना परीक्षण करने के लिए इसे केवल 75 मिनट की आवश्यकता होती है। किट की शेल्फ लाइफ 18 महीने की है।

उद्योग साझेदार कंपनी वैनगार्ड डायग्नोस्टिक्स प्राइवेट लिमिटेड जून 2021 के पहले सप्ताह में किट को वाणिज्यिक रूप से लांच करेगी। लांच किए जाने के समय आसानी से उपलब्ध स्टॉक 100 किट (लगभग 10,000 जांच) का होगा और लांच के बाद इसकी उत्पादन क्षमता 500 किट/ प्रति माह होगी। आशा है यह 75 रुपए प्रति जांच पर उपलब्ध होगी। यह किट कोविड-19 महामारी विज्ञान को समझने तथा व्यक्ति में पहले सार्स सीओवी-2 के एक्सपोजर के मूल्यांकन काफी उपयोगी होगी ।

रक्षा मंत्री श्री राजनाथ सिंह ने जरूरत के समय किट विकसित करने में डीआरडीओ तथा उद्योग के प्रयासों की सराहना की है ।

रक्षा अनुसंधान और विकास विभाग के सचिव तथा डीआरडीओ के अध्यक्ष डॉ. जी सतीश रेड्डी ने किट विकसित करने में शामिल टीम की प्रशंसा की और कहा कि इस कदम से महामारी के दौरान लोगों को मदद मिलेगी।

https://pib.gov.in/PressReleasePage.aspx?PRID=1720651

Press Information Bureau
Government of India

రక్షణ మంత్రిత్వ శాఖ

Fri, 21 May 2021 3:56PM

కోవిడ్ 19 యాంటీబాడీ గుర్తింపు కిట్‌ను అభివృద్ధి చేసిన డిఆర్‌డిఒ

సెరో-సర్వియలెన్స్ (వాక్సినేషన్ లేదా వ్యాధి వచ్చిన తర్వాత దానికి వ్యతిరేకంగా ఉన్న యాంటీ బాడీలను కొలిచే పద్ధతి) కోసం డిపాస్ -విడిఎక్స్ కోవిడ్ -19 జిజి యాంటీబాడీ మైక్రోవెల్ ఎలిసా అయిన యాంటీబాడీలను గుర్తించే డిపో్కోవాన్ కిట్‌ను డిఫెన్స్ రీసెర్చ్ అండ్ డెవలప్‌మెంట్ ఆర్గనైజేషన్ (డిఆర్‌డిఒ)కు చెందిన ప్రయోగశాల అయిన డిఫెన్స్ ఇనిస్టిట్యూట్ ఆఫ్ ఫిజియాలజీ అండ్ అలీడ్ సైన్సెస్ (డిఐపిఎఎస్) అభివృద్ధి చేసింది.

డిపో్కోవాన్ కిట్ సార్స్ -సిఒవి-2 వైరస్ లోని న్యూక్లియోకాప్సిడ్ (ఎస్&ఎన్) ప్రోటీన్లను, అలాగే దాని పెరుగుదలను 97శాతం సున్నితత్వం, 99శాతం నిర్దిష్టతతో గుర్తించగలదు. ఈ కిట్‌ను న్యూఢిల్లీకి చెందిన డయాగ్నాస్టిక్స్ అభివృద్ధి, ఉత్పత్తి చేసే కంపెనీ అయిన వాన్‌గార్డ్ డయాగ్నాస్టిక్స్ ప్రైవేట్ లిమిటెడ్సహకారంతో అభివృద్ధి చేశారు. డిపో్కోవాన్ కిట్‌ను శాస్త్రవేత్తలు దేశీయంగా అభివృద్ధి చేశారు. అనంతరం ఢిల్లీలోని పలు కోవిడ్ డెసిగ్నేటెడ్ ఆసుపత్రులలో 1000మంది రోగులకుపైగా శాంపుళ్ళను విస్తృతంగా ధృవీకరించిన తర్వాత దీనిని ఆవిష్కరించారు. గత ఒక్క సంవత్సరంలోనే ఈఉత్పత్తికి సంబంధించిన మూడు బ్యాచ్‌లను ధృవీకరించారు. యాంటీబాడీలను గుర్తించే ఈ కిట్‌ను ఏప్రిల్ 2021లో ఇండియన్ కౌన్సిల్ ఆఫ్ మెడికల్ రీసెర్చ్ (ఐసిఎంఆర్) ఆమోదించింది.

ఈ ఉత్పత్తిని అమ్మకాల కోసం, పంపిణీ కోసం ఉత్పత్తి చేయడానికి డ్రగ్స్ కంట్రోలర్ జనరల్ ఆఫ్ ఇండి (డిసిజిఐ),సెంట్రల్ డ్రగ్స్ అండ్ కంట్రోల్ ఆర్గనైజేషన్ (సిడిఎస్‌సిఒ), ఆరోగ్య కుటుంబ సంక్షేమ మంత్రి త్వ శాఖ నియంత్రణా ఆమోదాన్ని మే 2021లో తెలిపింది.

సార్స్ -సిఒవి-2 సంబంధిత యాంటీజెన్లను లక్ష్యం చేసుకొని మానవ సీరం లేదా ప్లాస్మాలోని ఐజిజి (IgG) యాంటీబాడీల ను గుణాత్మకంగా గుర్తించేందుకు ఉద్దేశించినదే డిపో్కోవాన్. ఇతర వ్యాధులతో క్రాస్ రియాక్టివిటీ లేకుండా ఈ పరీక్షను నిర్వ హించేందుకు కేవలం 75 నిమిషాలు అవసరం కనుక మొత్తం పరీక్ష వేగంగా జరిపే అవకాశాన్ని ఇస్తుంది. ఈ కిట్ ప్రభావం 18 నెలలు ఉంటుంది.

పరిశ్రమ భాగస్వామి వాన్‌గార్డ్ డయాగ్నిస్టిక్స్ ప్రైవేట్ లిమిటెడ్ ఈ ఉత్పత్తిని జూన్ 2021 తొలి వారంలో వాణిజ్యపరంగా ఉత్పత్తిని ప్రారంభించనుంది. ప్రారంభ సమయంలో అందుబాటులో 100 కిట్లు (సుమారు 1,000 పరీక్షలు) అందుబాటులో ఉంటాయి. ప్రారంభబించిన తర్వాత నెలకు 500 కిట్ల ఉత్పత్తి సామర్థ్యం ఉంది. ఒక్కో పరీక్ష రూ. 75లో అందుబాటులో ఉంటుందని అంచనా వేస్తున్నారు.

కోవిడ్ -19 ఎపిడెమియాలజీ (సాంక్రమిక్ రోగ విజ్ఞానం)ను అర్థం చేసుకునేందుకు, వ్యక్తి గతంలో సార్స్ -సిఒవి-2 కు ఎంతవరకు గురయ్యారనే విషయాన్ని అంచనా వేయడానికి ఈ కిట్ ఎంతో ఉపయోగపడుతుంది.

అవసరకాలంలో ఈ కిట్‌ను అభివృద్ధి చేసేందుకు డిఆర్‌డిఒ, పరిశ్రమల కృషిని రక్షణ మంత్రి రాజ్‌నాథ్ సింగ్ ప్ర శంసించారు. ఈ కిట్‌ను అభివృద్ధి చేయడంలో పాలు పంచుకున్న బృందాలను రక్షణ శాఖ ఆర్&డి కార్యదర్శి, డిఆర్‌డిఒ చైర్మన్ జి.సతీష్ రెడ్డి అభినందిస్తూ, ఈ చొరవ మహమ్మారి కాలంలో ప్రజలకు ఎంతో తోడ్పడుతుందన్నారు.

https://pib.gov.in/PressReleasePage.aspx?PRID=1720677

INDIA TODAY

Sat, 22 May 2021

DIPCOVAN: DRDO develops indigenous Covid-19 antibody detection kit

The Defence Research and Development Organisation has developed a Covid-19 antibody detection kit, to be sold across India from June first week for Rs 75 each. The kit will be useful for understanding Covid-19 epidemiology and assessing an individual's previous SARS-CoV-2 exposure

By Manjeet Negi

New Delhi: The Defence Institute of Physiology and Allied Sciences (DIPAS), a laboratory of Defence Research and Development Organisation (DRDO), has developed an antibody detection-based kit 'DIPCOVAN'.

The kit, developed indigenously by the DRDO Scientists in association with Delhi-based Vanguard Diagnostics Pvt Ltd, is intended for the qualitative detection of IgG antibodies in human serum or plasma, targeting SARS-CoV-2 related antigens.

According to a statement by the DRDO, DIPCOVAN offers a significantly faster turn-around time as it requires just 75 minutes to conduct the test without any cross reactivity with other diseases. The kit has a shelf life of 18 months.

DIPCOVAN, the indigenous Covid-19 antibody detection kit, developed by the DRDO

The kit was approved by the Indian Council of Medical Research (ICMR) in April 2021.

In May 2021, it received regulatory approval from the Drugs Controller General of India (DCGI), Central Drugs Standard Control Organisation (CDSCO), Ministry of Health and Family Welfare, to manufacture for sale and distribution.

DIPCOVAN will be sold commercially by Vanguard Diagnostics from the first week of June.

"Readily available stock at the time of launch will be 100 kits (approx 10,000 tests) with a production capacity of 500 kits/month after the launch. It is expected to be available at about Rs 75 per test. The kit will be very useful for understanding Covid-19 epidemiology and assessing an individual's previous SARS-CoV-2 exposure," the DRDO said.

Defence Minister Rajnath Singh has appreciated the efforts of DRDO and the industry in developing the kit at the time of need, the statement said.

Here is all you need to know about DIPCOVAN

What is DIPCOVAN?

DIPCOVAN is a Covid-19 antibody detection kit. It will help a person detect if they have previously been exposed to Covid-19 virus and if they have antibodies for it.

What will it be used for?

Its primary purpose is to detect antibodies. It will be used in Covid-19 epidemiology studies such as sero-surveys. You can also use it for detecting if you have Covid antibodies.

How much will it cost?

According to the DRDO statement, its industry partner Vanguard Diagnostics will sell the kit for Rs 75 each.

When will it be available?

The DIPCOVAN kit will be sold commercially from June first week. However, it is unclear if the individuals will be able to purchase them from chemists or will only labs have access to them.

How it works?

DIPCOVAN is a DIPAS-VDx Covid-19 IgG antibody microwell ELISA. The kit can detect both spikes as well as nucleocapsid (S&N) proteins of SARS-CoV-2 virus with a high sensitivity of 97 per cent and specificity of 99 per cent.

The DIPCOVAN kit has gone through extensive validation on more than 1,000 patient samples at various Covid designated hospitals in Delhi. Three batches of the product were validated during the last year.

https://www.indiatoday.in/coronavirus-outbreak/story/dipcovan-drdo-develops-indigenous-covid-19-antibody-detection-kit-1805407-2021-05-21

THE NEW INDIAN EXPRESS

Sat, 22 May 2021

After 2-DG drug, DRDO develops Covid antibody detection kit

DRDO said three batches of the product were validated for the last one year. The antibody detection kit was approved by the Indian Council of Medical Research (ICMR) in April 2021

New Delhi: The Defence Research and Development Organisation (DRDO) has developed an antibody test kit for the early screening of COVID.

DIPCOVAN, the DIPAS-VDx COVID 19 IgG Antibody Microwell ELISA for sero-surveillance has been developed by the Defence Institute of Physiology and Allied Sciences (DIPAS) in association with Delhi-based firm Vanguard Diagnostics Pvt Ltd.

The kit is believed to be very useful for understanding COVID-19 epidemiology and assessing an individual's previous SARS-CoV-2 exposure. (Photo | @DRDO_India)

Defence sources said the DIPCOVAN kit can detect both spike as well as nucleocapsid (S&N) proteins of SARS-CoV-2 virus with a high sensitivity of 97% and specificity of 99%.

"The kit was developed indigenously by the scientists, followed by extensive validation on more than 1000 patient samples at various Covid designated hospitals in Delhi. Three batches of the product were validated during last one year. The antibody detection kit is approved by ICMR in April this year," said a defence official.

In May 2021, the product received regulatory approval from the Drugs Controller General of India (DCGI) and Central Drugs Standard Control Organisation (CDSCO), Ministry of Health and Family Welfare to manufacture for sale and distribution.

According to DRDO, DIPCOVAN is intended for the qualitative detection of IgG antibodies in human serum or plasma, targeting SARS-CoV-2 related antigens. It offers a significantly faster turn-around time as it requires only 75 minutes to conduct the test without any cross-reactivity with other diseases. The kit has a shelf life of 18 months.

Earlier this month, the product had received the regulatory approval from the Central Drugs Standard Control Organisation's Drugs Controller General of India (DCGI) under the Ministry of Health and Family Welfare to manufacture for sale and distribution.

DIPCOVAN is intended for the qualitative detection of IgG antibodies in human serum or plasma, targeting SARS-CoV-2 related antigens. It offers a significantly faster turn-around-time as

it requires just 75 minutes to conduct the test without any cross reactivity with other diseases. The kit has a shelf life of 18 months.

Industry partner Vanguard Diagnostics Pvt Ltd will commercially launch the product during the first week of June. Readily available stock at the time of launch will be 100 kits (approx 10,000 tests) with a production capacity of 500 kits/month after the launch.

Secretary of Department of Defence (Research and Development) and DRDO Chairman Dr G Satheesh Reddy complimented the teams involved in developing the kit. "The kit expected to be available at a reasonable price of around Rs 75 per test will help people ascertain their antibody during the pandemic. It will be available in the market next month," he said.

Once available in the market, the kit will be very useful for understanding Covid-19 epidemiology and assessing an individual's previous SARS-CoV-2 exposure. Appreciating the efforts of DRDO and industry in developing the kit at the need of hour, Defence Minister Rajnath Singh stressed on its availability in the market at the earliest.

https://www.newindianexpress.com/nation/2021/may/21/after-2-dg-drug-drdo-develops-covid-antibody-detection-kit-2305686.html

FINANCIAL EXPRESS
Read to Lead

Sat, 22 May 2021

DRDO responds to questions on 2-DG's efficacy; Also launches Antibody Detection Kit for COVID-19

Sharing details of the clinical trials, the DRDO said that the trials for this drug started last year in April during the first wave of the pandemic, in which the scientists from INMAS carried out experiments with the help of Centre for Cellular and Molecular Biology (CCMB), Hyderabad

By Huma Siddiqui

Amidst debate over the efficacy of the recently launched drug 2-deoxy-D-glucose (2-DG), Defence Research and Development Organization (DRDO) says that Dr Reddy's Lab were joint development partners in the study on COVID patients. Responding to queries from the Financial Express Online, DRDO officials say, "Dr Reddy's Lab was the development partner in this clinical study on COVID patients, as long-standing industry partners of DRDO for 2-DG clinical applications since 2004. Earlier they have successfully completed phase-3 clinical trials of 2-DG for radiotherapy of brain tumor patients."

It went on to state the molecule was working effectively against SARS-CoV-2 virus, and inhibited the viral growth. Last May, Drugs Controller General of India's (DCGI) and Central Drugs Standard Control Organization (CDSCO) had approved the Phase-II clinical trial

"Other organisations might have worked on the drug in different ways however DRDO work is based on the scientifically well-established principle that 2-DG suppresses energy generation in our cells that are infected by virus, and thereby stops viral growth in body," DRDO official said in response to Patanjali claims.

Adding, "DRDO and Dr Reddy's lab presented the work to DCGI and got emergency use approval as per procedure." As reported by Financial Express Online earlier, the commercial launch of the drug is expected in June by Dr Reddy's Laboratories

What does DRL say?

According to the official spokesperson: "There is sufficient literature available in the public domain on 2-DG in the area of immunology/cancer therapy as it is not a new drug. In India, 2-DG has been a DRDO drug from the start. No other institute was involved in its development. The

trials to test its use against COVID-19 were a collaboration between the DRDO and Dr. Reddy's; no other institute was involved."

The story so far …

According to an official statement issued by the Ministry of Defence (May 8, 2021), this drug has been jointly developed and produced by DRDO and Dr Reddy's Laboratories (DRL), Hyderabad. The statement said that the drug has undergone clinical trials and it has shown that there is a faster recovery of hospitalized patients. During the trials, according to the statement, this drug helped in reducing supplemental oxygen dependence.

Sharing details of the clinical trials, the DRDO said that the trials for this drug started last year in April during the first wave of the pandemic, in which the scientists from INMAS carried out experiments with the help of Centre for Cellular and Molecular Biology (CCMB), Hyderabad.

It went on to state the molecule was working effectively against SARS-CoV-2 virus, and inhibited the viral growth. Last May, Drugs Controller General of India's (DCGI) and Central Drugs Standard Control Organization (CDSCO) had approved the Phase-II clinical trial of 2-DG in COVID-19 patients. This Phase II was done between May-October.

The approval for the Phase III trial was given last November. And it is expected to go on until August 2021 in over 200 hospitals. Globally this drug has been tested for treating various cancers. But it is only in India that it has been tested for COVID-19 pandemic. However, the DRDO statement indicates that the Phase III trials are over and the DCGI approval has been given based on the findings.

Meanwhile, Patanjali Research Institute claims it made a strong case for its therapeutic use against COVID-19 last year.

Covid-19 Antibody Detection Kit "DIPCOVAN"

On Friday (May 21, 2021) the Defence Institute of Physiology and Allied Sciences (DIPAS), under DRDO, developed an antibody detection-based kit "DIPCOVAN".

More about the kit

This kit can detect both spike as well as nucleocapsid (S&N) proteins of SARS-CoV-2 virus with a high sensitivity of 97% and specificity of 99%.

It has been developed in association with New Delhi based development and manufacturing diagnostics company — Vanguard Diagnostics Pvt Ltd.

This kit according to the Ministry of Defence (May 21, 2021) has been developed indigenously by the scientists and has been tested 1000 patients at various COVID designated hospitals in Delhi.

According to the note, three batches of the product were validated during the last one year and in April this year the ICMR gave its approval.

And, earlier this month the regulatory approval from the Drugs Controller General of India (DCGI), CDSCO, Ministry of Health and Family Welfare, was given to the manufacture for sale and distribution.

This kit is intended for the qualitative detection of IgG antibodies in human serum or plasma, targeting SARS-CoV-2 related antigens. And, with a shelf life of 18 months, this kit requires just 75 minutes to conduct the test without any cross reactivity with other diseases.

When will it be available in the market?

Industry partner Vanguard Diagnostics Pvt. Ltd is expected to commercially launch the product next month. And at the time of its launch in the first week, there will be a ready stock of 100 kits (Approx 10,000 tests). The company has a production capacity of 500 kits/month soon after the launch. And will be Rs 75 per test.

With this kit there will be a better understanding of COVID-19 epidemiology. And will also help in assessing an individual's previous SARS-CoV-2 exposure.

https://www.financialexpress.com/lifestyle/health/drdo-responds-to-questions-on-2-dgs-efficacy-also-launches-antibody-detection-kit-for-covid-19/2256585/

mint

Sat, 22 May 2021

DRDO develops Covid antibody detection kit: All you need to know

- ***The kit would be commercially launched in June and each test would cost around ₹75***
- ***It offers a significantly faster turn-around-time as it requires just 75 minutes to conduct the test without any cross reactivity with other diseases. The kit has a shelf life of 18 months, DRDO said***

An antibody detection-based kit DIPCOVAN has been developed by a Defence Research and Development Organisation (DRDO) laboratory that can detect spike as well as nucleocapsid (S&N) proteins of coronavirus with a high sensitivity of 97% and specificity of 99%, DRDO said. The kit would be commercially launched in June and DRDO informed that each test would cost around ₹75.

DRDO develops Covid antibody

The product has been developed in association with Vanguard Diagnostics Pvt Ltd, a Delhi based development and manufacturing diagnostics company.

DRDO noted, "It was developed indigenously by scientists, followed by extensive validation on over 1000 patient samples at various COVID hospitals in Delhi."

The antibody detection kit was approved by ICMR in April 2021, while in May, it received the regulatory approval from the DCGI, CDSCO, Ministry of Health & Family Welfare, for manufacturing the product.

In an official statement, the Ministry of Defence said, "Defence Institute of Physiology and Allied Sciences (DIPAS), a laboratory of DRDO, has developed an antibody detection-based kit 'DIPCOVAN', the DIPAS-VDx COVID-19 IgG Antibody Microwell ELISA for sero-surveillance. The DIPCOVAN kit can detect both spike as well as nucleocapsid (S&N) proteins of SARS-CoV-2 virus with a high sensitivity of 97 per cent and specificity of 99 per cent."

"The DIPCOVAN kit was developed indigenously by the scientists, followed by extensive validation on more than 1,000 patient samples at various COVID designated hospitals in Delhi. Three batches of the product were validated during last one year," the statement said.

Here's what you need to know about this testing kit

1. DIPCOVAN is intended for the qualitative detection of IgG antibodies in human serum or plasma, targeting SARS-CoV-2 related antigens.
2. It offers a significantly faster turn-around-time as it requires just 75 minutes to conduct the test without any cross reactivity with other diseases. The kit has a shelf life of 18 months.
3. Vanguard Diagnostics Pvt. Ltd will commercially launch the product during the first week of June 2021.
4. At the time of launch, 100 kits (approx. 10,000 tests) will be available and after a month the production capacity would be increased to 500 kits/month. It is expected to be available at about ₹75 per test.
5. The kit will be very useful for understanding COVID-19 epidemiology and assessing an individual's previous SARS-CoV-2 exposure.

Union Defence Minister Rajnath Singh has appreciated the efforts of DRDO and the industry in developing the kit at the time of need. Secretary Department of Defence R&D & Chairman DRDO Dr G Satheesh Reddy complimented the teams involved in developing the kit and said the initiative will help the people during the pandemic.

https://www.livemint.com/science/health/drdo-develops-covid-antibody-detection-kit-all-you-need-to-know-11621593712987.html

दैनिक भास्कर

Sat, 22 May 2021

कोरोना की स्वदेशी किट: DRDO ने बनाई कोरोना एंटीबाडी टेस्टिंग किट, 75 रुपए के खर्च पर 75 मिनट में मिलेगी जांच रिपोर्ट

रक्षा अनुसंधान और विकास संगठन (DRDO) ने एंटीबॉडी की जांच के लिए डिप्कोवैन (Dipcovan) किट बनाई है। DRDO के मुताबिक, यह किट शरीर में SARS-CoV-2 के वायरस और इससे लड़ने वाले प्रोटीन न्यूक्लियो कैप्सिड (S&N) दोनों की मौजूदगी का पता लगा सकती है। यह 97% की हाई सेंसिटिविटी और 99% स्पेसिफिसिटी के साथ मात्र 75 रुपए की कीमत पर 75 मिनट में आपको रिपोर्ट भी दे देगी।

1000 मरीजों पर की गई टेस्टिंग

दिल्ली के अस्पतालों में करीब 1000 मरीजों पर परीक्षण के बाद इसे बाजार में उतारने की अनुमति दी गई है। पिछले एक साल के दौरान इस किट के तीन बैच का अस्पतालों में अलग-अलग परीक्षण किया गया है। DRDO के लैब डिफेंस इंस्टीट्यूट ऑफ फिजियोलाजी एंड एलायड साइंसेस लेबोरेटरी ने दिल्ली की एक निजी कंपनी वैनगार्ड डायगनोस्टिक के सहयोग से इस किट को तैयार किया है। यानि यह पूर्ण रूप से स्वदेशी किट है।

जून के पहले हफ्ते से बाजार में मिलेगी किट

ICMR ने इसी अप्रैल में डिप्कोवैन किट को अनुमति दी और इसी महीने ड्रग्स कंट्रोलर जनरल आफ इंडिया (DCGI) ने इसके निर्माण और बाजार में बेचे जाने की मंजूरी दी है। वैनगार्ड लिमिटेड व्यावसायिक तौर पर जून के पहले हफ्ते में इस किट को बाजार में उतारेगा।

लान्चिंग के समय करीब 100 किट उपलब्ध होंगी। इससे करीब 10 हजार लोगों की जांच होगी और इसके बाद हर महीने 500 किट का प्रोडक्शन होगा। रक्षामंत्री राजनाथ सिंह ने DRDO की इस पहल की सराहना करते हुए कहा कि यह किट कोविड महामारी से लड़ाई में लोगों की मदद करेगी।

DRDO ने एंटी कोविड ड्रग 2DG भी लॉन्च की है

इससे पहले सोमवार को DRDO की एंटी कोरोना ड्रग 2DG की इमरजेंसी यूज के लिए रिलीज किया गया है। ये दवा एक पाउडर के रूप में है। इस दवा को सबसे पहले दिल्ली के DRDO कोविड अस्पताल में भर्ती मरीजों को दिया जाएगा।

एंटी कोविड दवा पर DRDO प्रमुख जी. सतीश रेड्डी ने बताया कि अभी सप्ताह में 10,000 के आस पास कुल उत्पादन होगा। आज AIIMS, AFMS और DRDO अस्पतालों में दे रहे हैं। बाकी राज्यों को अगले चरण में देंगे। अभी थोड़ी देरी है। जून के पहले हफ्ते से सभी जगहों पर 2DG दवा उपलब्ध होगी।

उन्होंने कहा कि यह दवा कोरोना वायरस से संक्रमित कोशिकाओं पर सीधा काम करेगी। शरीर का इम्यून सिस्टम काम करेगा और मरीज जल्दी ठीक होगा। इसे मरीज के वजन और डॉक्टर के प्रिसक्रिप्शन के आधार पर कम से कम 5-7 दिन सुबह-शाम 2 डोज लेनी है।

https://www.bhaskar.com/national/news/drdo-has-prepared-corona-antibody-testing-kit-dipcovan

Sat, 22 May 2021

DRDO ने डेवलप की कोविड-19 एंटीबॉडी डिटेक्शन किट DIPCOVAN, बाजार में कब आएगी, क्या होगी कीमत?

DRDO की एक लैब ने एक एंटीबॉडी डिटेक्शन बेस्ड किट 'DIPCOVAN' डेवलप की है।

रक्षा अनुसंधान और विकास संगठन (DRDO) की एक लैब ने एक एंटीबॉडी डिटेक्शन बेस्ड किट 'DIPCOVAN', डीपास-वीडीएक्स कोविड-19 IgG एंटीबॉडी माइक्रोवेल एलिसा डेवलप की है। जिसके जरिए कोविड19 के खिलाफ एंटीबॉडी का पता लगाया जा सकेगा। इससे सीरो सर्विलांस में मदद मिलेगी। डीआरडीओ का कहना है कि

किट स्पाइक के साथ-साथ SARS-CoV-2 वायरस के न्यूक्लियोकैप्सिड (S & N) प्रोटीन का पता लगा सकती है, जिसमें 97% की हाई सेंसेटिविटी और 99% की स्पेसिफिशिटी है। किट नई दिल्ली की कंपनी वैनगार्ड डायग्नोस्टिक्स प्राइवेट लिमिटेड के सहयोग से डेवलप की गई है।

डिपकोवैन किट स्वदेश में वैज्ञानिकों की ओर से डेवलप की गई है। बाद में दिल्ली के चुनिंदा अस्पतालों में 1,000 से अधिक मरीज सैम्पल पर इसका बड़े पैमाने पर सत्यापन किया गया है। प्रोडक्ट के तीन बैचों पर सत्यापन का काम पिछले एक वर्ष के दौरान किया गया। इस किट को अप्रैल, 2021 में भारतीय चिकित्सा अनुसंधान परिषद (आईसीएमआर) की ओर से मंजूरी दी गई। इस प्रोडक्ट को बिक्री और डिस्ट्रिब्यूशन के लिए बनाने की ड्रग कंट्रोलर जनरल ऑफ इंडिया (डीसीजीआई), केंद्रीय औषधि मानक नियंत्रण संगठन (सीडीएससीओ), स्वास्थ्य और परिवार कल्याण मंत्रालय ने मई 2021 में मंजूरी दे दी।

रक्षा मंत्री राजनाथ सिंह ने जरूरत के समय किट विकसित करने में डीआरडीओ तथा उद्योग के प्रयासों की सराहना की है। डीआरडीओ के सचिव तथा डीआरडीओ के अध्यक्ष डॉ। जी सतीश रेड्डी ने किट विकसित करने में शामिल टीम की प्रशंसा की और कहा कि इस कदम से महामारी के दौरान लोगों को मदद मिलेगी।

क्या करता है DIPCOVAN?

डिपकोवैन का मकसद मानव सीरम या प्लाज्मा में क्वालिटेटिव नजरिए से IgG एंटीबॉडी का पता लगाना है जो सार्स सीओवी-2 से संबंधित एंटीजेन पहचान करता है। यह काफी तेज टर्न-अराउंड-टाइम देता है क्योंकि अन्य बीमारियों के साथ किसी भी क्रॉस रिएक्टिविटी के बिना परीक्षण करने के लिए इसे केवल 75 मिनट की आवश्यकता होती है। किट की शेल्फ लाइफ 18 महीने की है।

DIPCOVAN: कब होगी लॉन्च?

इंडस्ट्री पार्टनर कंपनी वैनगार्ड डायग्नोस्टिक्स प्राइवेट लिमिटेड जून 2021 के पहले सप्ताह में किट को कॉमर्शियली लांच करेगी। लांच किए जाने के समय आसानी से उपलब्ध स्टॉक 100 किट (लगभग 10,000 जांच) का होगा और लांच के बाद इसकी उत्पादन क्षमता 500 किट/ प्रति माह होगी। उम्मीद यह 75 रुपये प्रति जांच पर उपलब्ध होगी। यह किट कोविड-19 महामारी विज्ञान को समझने तथा व्यक्ति में पहले सार्स सीओवी-2 के एक्सपोजर के वैल्यूएशन में काफी उपयोगी होगी।

https://www.zeebiz.com/hindi/india/drdo-lab-develops-an-antibody-detection-based-kit-dipcovan-key-details-48253

THE ECONOMIC TIMES

Sat, 22 May 2021

Government mulling roping in 3-4 more firms to ramp up DRDO COVID-19 drug production

Synopsis

2-DG has been developed by DRDO's Institute of Nuclear Medicine and Allied Sciences (INMAS), in collaboration with Dr Reddy's Laboratories, Hyderabad. Clinical trial results have shown that this molecule helps in the faster recovery of hospitalized patients and reduces supplemental oxygen dependence.

Amid the ongoing pandemic, the government is considering the involvement of three or four more firms to ramp up the production of the drug 2DG, developed by the DRDO for the treatment of COVID-19 patients and do away with its scarcity.

"After the launch of the medicine on Monday, the demand for the drug is very high as a lot of patients and their relatives are sharing positive experiences," government sources said.

However, due to the limited production capacity, many patients have not been able to get the medicine despite a prescription from doctors, they said.

In view of the situation, we are considering allowing 3-4 more firms to produce the drug using the DRDO patent for the drug, the sources said.

In the first batch, manufacturers had supplied only 10,000 sachets and the supply is likely to improve only around mid-June.

From the first batch of the medicine, satchets were distributed to the All India Institute of Medical Sciences (AIIMS) and the Director-General of the Armed Forces Medical Services while some were kept as reserve.

2-DG has been developed by DRDO's Institute of Nuclear Medicine and Allied Sciences (INMAS), in collaboration with Dr Reddy's Laboratories, Hyderabad. Clinical trial results have shown that this molecule helps in the faster recovery of hospitalized patients and reduces supplemental oxygen dependence.

A higher proportion of patients treated with 2-DG have shown RT-PCR negative conversion in COVID patients. The drug will be of immense benefit to the people suffering from COVID in the ongoing pandemic.

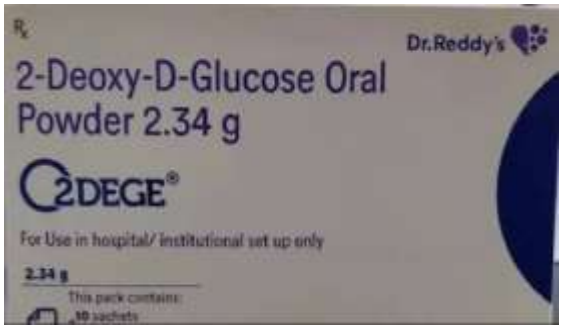
https://economictimes.indiatimes.com/industry/healthcare/biotech/pharmaceuticals/government-mulling-roping-in-3-4-more-firms-to-ramp-up-drdo-covid-19-drug-production/articleshow/82829547.cms

Sat, 22 May 2021

DRDO की दवा 2 DG का प्रोडक्शन बढ़ेगा, 3-4 कंपनियों को मिल सकती है मंजूरी

कोविड-19 की पहली लहर के दौरान ही पीएम के निर्देश पर DRDO ने एंटी कोरोना ड्रग पर काम करना शुरू कर दिया था। अब ये दवा 2 DG नाम से लॉन्च हो चुकी है। दवा के बेहतरीन रेस्पॉन्स को देखते हुए अब सरकार इसके उत्पादन को बढ़ाने के बारे में विचार कर रही है।

नई दिल्ली: कोरोना महामारी के इलाज में गेमचेंजर बनकर आई डीआरडीओ की देसी दवाई 2 DG का मरीजों पर अच्छा असर दिखाई दे रहा है। यही वजह है कि दवा की मांग भी बढ़ रही है। 10 हजार सैशे से दवाई की लॉन्चिंग हुई है, जिसके बाद मई के अंत तक इसका दूसरा भी बैच रिलीज होने की उम्मीद है। कोरोना महामारी को ध्यान में रखते हुए अब सरकार 2 DG दवा के उत्पादन को बढ़ाने के लिए तीन से चार कंपनियों को प्रोडक्शन के लिए मंजूरी देने के बारे में विचार कर रही है। सरकारी सूत्रों की ओर से कहा गया है कि डीआरडीओ की दवा के लॉन्च होने के बाद से ही इसकी डिमांड काफी ज्यादा बढ़ी हुई है। मरीजों और उनके तीमारदारों की ओर से सकारात्मक अनुभव सामने आ रहे हैं।



कोरोना की दवाई का प्रोडक्शन बढ़ाने पर विचार.

3-4 कंपनियों को मिल सकती है मंजूरी

चूंकि दवा का लिमिटेड स्टॉक ही लॉन्च किया गया है, ऐसे में मरीजों को बिना डॉक्टर के पर्चे के दवाई उपलब्ध नहीं हो रही है। ऐसे में दवा का उत्पादन तेजी से बढ़ाने पर विचार हो रहा है। सरकार इसके लिए 3 से 4 और कंपनियों को दवा के उत्पादन की मंजूरी देने वाली है। जून के दूसरे हफ्ते तक दवा के उत्पादन में बढ़ोतरी की उम्मीद की जा रही है। 2 DG का पहला बैच एम्स और डायरेक्टर जनरल ऑफ द आर्म्ड फोर्सेज मेडिकल सर्विसेज़ को दिया गया, जबकि कुछ सैशे रिजर्व रखे गए।

2 DG को मिल रही है अच्छी प्रतिक्रिया

कोरोना महामारी के खिलाफ अहम लड़ाई में भारत को एक और बड़ा हथियार 2-डीऑक्सी-डी-ग्लूकोज (2-डीजी) दवा के तौर पर मिल गया है। यह एक एंटी कोरोना ड्रग है। जिसे देश के रक्षा अनुसंधान और विकास संगठन यानी डीआरडीओ ने विकसित किया है। इसके आपात इस्तेमाल की मंजूरी भारत सरकार ने दी है। ये दवा कोरोना मरीजों के अस्पताल में एडमिट होने के दिन तो कम कर ही देती है, उनकी ऑक्सीजन पर निर्भरता को भी काफी कुछ घटा देती है। दवा पाउडर के तौर पर सैशे में आती है, जिसे पानी में घोलकर मरीज को पीना होता है। डीआरडीओ का कहना है कि जून के दूसरे हफ्ते दवा निजी अस्पतालों और बाजार में भी उतारने की योजना है। इसकी कीमत भी लोगों की क्षमता के हिसाब से कम ही रखी गई है, ताकि ज्यादा से ज्यादा लोगों को इसका फायदा मिल सके।

https://hindi.news18.com/news/nation/govt-considers-roping-more-firms-to-ramp-up-production-of-corona-drug-2-dg-developed-by-drdo-3595604.html

ThePrint

Sat, 22 May 2021

How do Covid hospitals set up by DRDO operate & what's the role of armed forces

The DRDO has set up five temporary hospitals to treat Covid patients. More are planned to handle a possible third wave. But the agency's role has primarily been of a project executing body

By Amrita Nayak Dutta, Edited by Poulomi Banerjee

New Delhi: To help the country's civil administration tackle the surge in Covid cases in the second wave of the pandemic, temporary hospitals have been set up across the country by the Defence Research and Development Organisation (DRDO) in the past few weeks.

Five such hospitals were established to begin with, in the immediate aftermath of the surge in Covid cases.

A staff checks the equipment at the ICU of a Covid hospital set up by the DRDO in Varanasi | ANI

This included a 750-bed Sardar Vallabhbhai Patel Covid hospital in Delhi, a 900-bed Dhanvantari hospital in Gujarat's Ahmedabad, a 500-bed ESI hospital in Patna, a 750-bed Pandit Rajan Mishra hospital in Varanasi, and a 500-bed Atal Bihari Vajpayee hospital in Lucknow.

Of these, the Delhi hospital had been opened last year after the pandemic hit the country, but closed operations after cases dipped. It was revived after the country was hit by a second surge. Similarly the Patna facility had exited before, but the DRDO helped update it to deal with the second pandemic wave.

More such facilities are now being set up across the country, also to prepare for a possible third Covid wave.

But what has been the exact role of the DRDO in making these units operational?

While the DRDO is the executing body, top defence sources told ThePrint that the cost of construction of the hospitals and equipping them with the requisite medical infrastructure are being met from donations, state government funds and the PM CARES fund.

Staff for the hospitals are being drawn from among military doctors, as well as nursing and other staff from the three wings of the armed forces, who have been mobilised from all parts of the country.

'In a supervising and managing role'

Defence sources said the DRDO's primary role has been that of a project executing body, which has been issuing contracts to private firms for the construction of these hospitals. It has also been involved in urgent procurement of essential equipment and consumables for the hospitals, such as PPE kits.

"The DRDO has also been closely supervising and managing the work being done by private agencies engaged in the construction," a defence official said.

The official added that most of the contracts for construction of these hospitals are "fabrication (construction) contracts" given out by the Chief Executive (Directorate of Civil Works & Estates) in DRDO.

The state governments are assisting the DRDO with infrastructure such as electricity and water connections and other necessary permissions in setting up these hospitals.

All the five DRDO hospitals are level three hospitals that offer complete facilities for the treatment of Covid patients, such as oxygen and ventilator support, and have been upgraded with more beds and other equipment in the weeks following the openings.

An Integrated Command and Control Centre has been set up to monitor admissions of patients in Varanasi and Lucknow.

Sources said the hospitals may continue operations even when the number of Covid cases decline.

In addition, more temporary hospitals are being set up by the DRDO to prepare for more Covid cases or a possible third wave of the pandemic.

While a 500-bed hospital in Haryana's Panipat has been partially opened for Covid patients, the DRDO is also providing assistance in setting up a 1,200-bed hospital in Gujarat's Gandhinagar, which will be funded by Tata Trusts.

More hospitals are planned to come up in Uttarakhand's Haldwani and Rishikesh, Jammu and Kashmir, Guwahati in Assam, and Sikkim.

In addition to the temporary hospitals being facilitated by the DRDO, commanders of local military formations across the country have been also setting up other auxiliary medical facilities, in consultation with the state governments.

Additional infrastructure has also been put into place at several military hospitals, some of which are admitting Covid positive cases from the civilian population.

The state-run Hindustan Aeronautics Limited (HAL) is also setting up two Covid treatment facilities in UP's Lucknow and Maharashtra's Nashik. HAL has already constructed a facility for the Karnataka government in Bengaluru.

Though set up and run by the armed forces, defence sources said these facilities are being administered by local governments, and no preference is being given to patients from armed forces.

Military deploys its medical staff

All the hospitals set up by the DRDO are being manned by teams of military doctors and support staff, mobilised from across the country.

A total of 1,306 military medical staff have been deployed at the five hospitals that are currently operational. This includes doctors — general and specialists, nursing staff, and technical and support staff.

Of the five, the Dhanvantari hospital in Ahmedabad has the maximum number of military medical staff, a total of 371.

The Sardar Vallabhbhai Patel Covid hospital in New Delhi has 321 medical staff from the military, while the Atal Bihari Vajpayee Covid Hospital in Lucknow has 281. Pandit Rajan Mishra Covid facility in Varanasi has 160, while 173 medical staff from the military have been deployed at the ESI Hospital in Patna.

Additionally, the medical staff at each hospital also includes technical and support staff from the military.

Hospitals like Ahmedabad's Dhanvantari also has civilian doctors attending to patients. Defence sources said 25 additional doctors and 39 paramedics from other agencies, such as ITBP and CAPFs, have also been deployed here.

Similarly, 99 additional doctors from other agencies are serving at the Delhi Covid facility set up by the DRDO.

Owing to the large number of medical staff from the military who have been deployed at these facilities, many military veterans have in the past few days questioned why it is being said that the DRDO or HAL have set up these hospitals, when they are being run by military doctors and staff.

Former Navy chief Admiral Arun Prakash (retd) too tweeted, "Let's give credit where due!"

https://theprint.in/india/drdos-covid-hospitals-are-funded-by-pm-cares-run-by-military-doctors-and-staff/662210/

FORTUNE INDIA

Sat, 22 May 2021

The DRDO's defence against Covid-19

The Defence Research and Development Organisation in India has shown, during the Covid-19 pandemic, how strong scientific organisations can help in a health crisis

By Hindol Sengupta

One would not, in common understanding, usually connect India's main military research and development organisation with opening a lifesaving hospital.

But through the Covid-19 crisis, the Defence Research and Development Organisation (DRDO) has consistently delivered some of the best plug-and-play makeshift hospitals during the pandemic that hit the country in March 2020. The organisation's 500-bed hospital in Delhi manned mostly by doctors of the Armed Forces Medical Services has been a lifesaver for many. Such facilities were opened around the same time in other locations around the country too. In its most recent work against Covid-19, DRDO has also developed an antibody detection kit.

COVID-19 care center at Delhi Cantt by DRDO, Indian Army, Indian Navy, and Indian Air Force getting the red room prepared for the treatment of patients. Image: Alamy

That is not all. Last year DRDO Scientists came up with a quick and effective design for a low- cost ventilator. The ventilator, named DEVEN (acronym for DRDO Economical Ventilator), was designed by scientists of the Institute of Nuclear Medicine and Allied Sciences Laboratory at the Dr. A. P. J. Abdul Kalam Missile Complex, DRDO. According to a paper on this product written by researchers of the Indian National Academy of Engineering, "DEVEN has features comparable to high-end ventilators and would serve the requirements of a large number of ventilators under the present COVID-19 pandemic situation. Also, DEVEN being a portable ventilator can be used in field application using a portable air compressor and reservoir. Hence, it can be used in an ambulance, any mobile vehicle or for application in any remote/rural area".

The researchers noted that though low-cost the portable ventilator had, "… precise measurement and control/adjustment of important patient parameters such as inspiratory pressure, respiration (breathe) rate, inhaling–exhaling (I:E) ratio, tidal volume, and percentage oxygen (FiO2)".

This year the DRDO has done one better. It has repurposed an anti-cancer drug to be used in the treatment of Covid-19. The 2-DG (2-deoxy-D-Glucose) was first developed by DRDO as a radio-sensitizer compound when used as an adjuvant to radio-therapy of cancer patients; and conducted successful phase I and II clinical trials in brain tumor patients.

"After Pokharan nuclear tests in 1998, when the U.S. imposed sanctions on import of 2-DG into the country, DRDO developed indigenous technology of 2-DG synthesis and transferred the technology to Dr Reddy's Lab, Hyderabad (DRL) for the production of drug in 2004. Later, DRDO along with DRL conducted Phase-Ill clinical trial of 2-DG in brain tumor (Glioblastoma Multiforme) patients at reputed hospitals of India including AIIMS New Delhi, Tata Memorial Hospital Mumbai, VIMHANS Bangalore, Dharmashila Cancer Hospital, Noida, and several other centres of clinical excellence till 2009," states a research note on the drug released by DRDO.

The drug was first tested against SARS-CoV-2. The 2-DG drug had already had a clinical trial, though, as explained earlier, it was for a different reason, but if it could be shown to be effective against SARS-CoV-2, there was a high chance that it would work against Covid-19. The Centre for Cellular and Molecular Biology at Hyderabad tested 2-DG which showed, as the note details,

"excellent efficacy in the experiments using virus- infected cells. It clears nearly 99 % viral load at safe (non-toxic to cells) dose of 2-DG. At higher and safe concentrations of the drug, negligible virus were detected, which means it not only slows down but completely stops the viral replication/reproduction in infected cells".

It is after this that, with the coming of the second wave of the deadly Coronavirus, that 2-DG was considered for use against Covid-19. After two rounds of successful trials, phase three trials on the medicine are now being conducted, and its success could give significant boost to the fight against Covid-19 in the country. In the meantime, encouraged by results till date, the Drug Controller General of India has approved it for emergency use as adjunctive therapy against Covid-19 (moderate to severe cases).

DRDO is not alone. ISRO (Indian Space Research Organisation) has used its own technical prowess to build SWAAS, portable medical oxygen concentrator, and the device is able to supply oxygen at a steady rate of 10 LPM (litres per minute) to two patients at one time. It can also boost oxygen levels by separating nitrogen gas from normal air using the Pressure Swing Absorption (PSA) technique. ISRO has also built a geo-portal BHUVAN-Covid-19 to track the spread of the pandemic.

These organisations and their work during the pandemic have one important lesson: investment in science never goes to waste. Therefore, greater investment in building a scientific temper, encouraging students to take up science as a subject of study (including medicine) pays dividends in crisis moments in directions that could have perhaps never been imagined.

(Views are personal. The author is a historian and a columnist. He is a multiple award-winning author of nine books.)

https://www.fortuneindia.com/polemicist/the-drdos-defence-against-covid-19/105489

TSG SundayGuardianLive

Sun, 23 May 2021

'DRDO does remarkable work amid pandemic'

By Ajeet Kumar Srivastava

New Delhi: DRDO is the R&D wing of Ministry of Defence, Government of India, with a vision to empower India with cutting-edge defence technologies and a mission to achieve self-reliance in critical defence technologies and systems, while equipping our armed forces with state-of-the-art weapon systems and equipment in accordance with. When disaster strikes in the country, DRDO plays an important role in providing every necessary thing, DRDO always stand with the country, like during the corona pandemic situation in India. DRDO worked on every aspect related to corona. DRDO has set up hospitals in many cities, invented the 2DG medicine to avoid the pandemic. It has set up oxygen plant and antibodies testing kit has also been introduced.

With the second wave of the Covid-19 pandemic crippling the health infrastructure across the country, the defence establishment has stepped up aid efforts by setting up makeshift hospitals in various cities. In a few days, the Sardar Ballabh Bhai Patel Hospital was prepared. Likewise, a 500-bed hospital was set up in Delhi with ICU facilities, A hospital with 500 beds was set up in Lucknow, a Covid hospital in Patna with 500 beds, a Covid hospital with 900 beds was set up in Ahmedabad, a Covid hospital with 750 beds was set up in Varanasi, two Covid hospitals were set up in Uttarakhand, and one hospital in Jammu and one in Srinagar are being set up.

While there is panic in the country for oxygen supplies, the DRDO has played a big role through oxygen plants to save people from this crisis. DRDO is now helping in fighting the current crisis of oxygen for Covid-19 patients. An oxygen plant is designed for a capacity of 1,000 litres per minute (LPM). The system can cater to 190 patients at a flow rate of 5 LPM and charge 195 cylinders per day. Two variants of the system have been configured. The basic version consists of a 10-litre oxygen cylinder, a pressure regulator cum flow controller, a humidifier and a nasal cannula. The

oxygen flow is regulated manually based on the SpO2 readings. In the second configuration, the oxygen cylinder is equipped with electronic control which automatically regulates the oxygen flow through a low-pressure regulator and a SpO2 probe.

DRDO took the initiative of developing anti-Covid therapeutic application of 2-DG. In April 2020, during the first wave of the pandemic, INMAS-DRDO scientists conducted laboratory experiments with the help of Centre for Cellular and Molecular Biology (CCMB), Hyderabad, and found that this molecule works effectively against SARS-CoV-2 virus and inhibits the viral growth. Based on these results, Drugs Controller General of India's (DCGI) Central Drugs Standard Control Organization (CDSCO) permitted Phase-II clinical trial of 2-DG in Covid-19 patients in May 2020.

The first batch of the adjunct Covid therapy anti- Covid drug, 2-deoxy-D-glucose (2-DG), was released by Defence minister Rajnath Singh and handed over to Minister for Health & Family Welfare, Science & Tech and Earth Sciences Dr Harsh Vardhan in New Delhi on May 17.

One box each of the sachets of the drug were handed over to Director, All India Institute of Medical Sciences (AIIMS) Dr Randeep Guleria and Lt Gen Sunil Kant of Armed Forces Medical Services (AFMS). More will be handed over to different hospitals across the country for emergency use.

https://www.sundayguardianlive.com/news/drdo-remarkable-work-amid-pandemic

The Indian EXPRESS

Mon, 24 May 2021

Centre approves setting up of 5 new oxygen manufacturing plants in HP

According to an oxygen logistics team, around 67 metric tonnes (MT) of oxygen is being produced in Himachal daily, out of which 56 MT is consumed

Shimla: The centre has approved the setting up of five new oxygen manufacturing plants in Himachal Pradesh, health officials said on Sunday.

A 20 kilolitre cryogenic tank has also been installed at IGMC Shimla and its trial will be held in a few days, a health official said. (Representational)

In coordination with the Defence Research and Development Organisation (DRDO), two pressure swing adsorption (PSA) plants will be established at IGMC hospital in Shimla, and one each at regional hospital in Una, military hospital in Yol and regional hospital in Solan, an official said, adding that each of the plants will have a production capacity of 1,000 litres per minute (LPM).

He said a 20 kilolitre cryogenic tank has also been installed at IGMC Shimla and its trial will be held in a few days.

According to an oxygen logistics team, around 67 metric tonnes (MT) of oxygen is being produced in Himachal daily, out of which 56 MT is consumed.

https://indianexpress.com/article/cities/shimla/centre-approves-setting-up-of-5-new-oxygen-manufacturing-plants-in-hp-7327439/

BRIGHTER KASHMIR

Sun, 23 May 2021

Work on 500 bedded DRDO-hospital near completion; Div Com reviews availability of power, water supply, others amenities

Divisional Commissioner Jammu, Dr Raghav Langer today visited Bhagwati Nagar and chaired a meeting of the concerned officers to review the status of work on 500 bedded Covid hospital being constructed by Defense Research and Development Organization (DRDO).

The Divisional Commissioner reviewed in detail various important works which needed to be in place for operationalisation of the hospital including status of civil work, water power supply, blacktopping of roads, sewerage system, Internet connectivity, man power etc.

It was informed that work on main structures was almost complete, while flooring, washrooms, laying of medical gas pipeline and other allied works are in progress and the hospital is likely to be ready for commissioning within fixed timeline.

"All major works have been completed, while some allied works are in full swing", the DRDO officials informed.

The Div Com also inspected blacktopping of roads of entry, exit gate, periphery roads, and internal roads. The Chief Engineer PWD informed that the 80 percent blacktopping has been completed while work on the remaining 20 percent was in progress.

The Div Com instructed the Chief Engineer to expedite the pace of work and ensure its completion within a time bound manner.

Regarding the sewerage treatment, it was informed that work on sewerage network has been completed, while work on internal drainage system is in progress.

About the water and power supply, it was informed that the 4.23 MVA distribution transformer has already been commissioned besides, water supply has also been maintained.

The Div Com instructed Chief Engineer JPDCL to keep buffer transformers in place to meet any emergency. The Chief Engineer Jal Shakti was directed to expedite the work on a dedicated tube well so that uninterrupted water supply to the hospital can be maintained.

The Div Com also directed ADC Jammu to appoint a nodal officer of FCS&CA department who shall ensure supply of diesel/fuel for operationalizing the Genset.

While reviewing the oxygen supply, the DRDO officers apprised the Div Com that the LMO plant would be installed within days and the testing of oxygen flow would be conducted on May 28.

Regarding the deployment of the manpower, it was informed that some health care professionals, para medical staff would be provided by Directorate of Health Services Jammu, while advertisements have been issued for engagement of more doctors, lab technicians, para medical staff, nurses etc.

The Div Com also directed the concerned officers for deployment of Engineer of PWD Electric division, Mechanical Engineering Department and plumbers and other required technical staff.

He directed all the concerned officers to work in close coordination and complete all the works pertaining to their department for facilitating early commissioning of hospital. "The commissioning of DRDO hospital will help in efficient management of Covid-19 patients, he added.

The meeting was attended by Managing Director, National Health Mission, Yasin Chaudhary; Principal GMC Jammu, Dr Shashi Sudan; MD JK Medical Supplies, Director Industries and Commerce, Director Health Services, Chief Construction Engineer, (R&D) Estates North; Deputy Chief Construction Engineer; Chief Engineers of JPDCL, Jal Shakti, PWD, besides senior functionaries of DRDO, UEED, BSNL and other concerned officers.

http://brighterkashmir.com/work-on-500-bedded-drdo-hospital-near-completion-div-com-reviews-availability-of-power-water-supply-other-amenities

अमर उजाला

Sat, 22 May 2021

डीआरडीओ अस्पताल जम्मू का कार्य अंतिम चरण में

जम्मू: जम्मू के भगवती नगर में बनाए जा रहे डीआरडीओ के 500 बेड वाले कोविड अस्पताल का निर्माण कार्य अंतिम चरण में पहुंच गया है। अगले सप्ताह अस्पताल का काम पूरा हो सकता है।

मंडलायुक्त डॉ. राघव लंगर ने निर्माण कार्य स्थल का दौरा कर संबंधित अधिकारियों को तय समयावधि में अस्पताल का कार्य पूरा करने के निर्देश दिए। उन्हें बताया गया कि अस्पताल में बिजली और पानी की आपूर्ति की व्यवस्था कर दी गई है। आंतरिक ड्रेनेज सिस्टम पर काम किया जा रहा है।

डीआरडीओ के अधिकारियों ने मंडलायुक्त को बताया कि ऑक्सीजन के लिए एलएमओ प्लांट को आगामी कुछ दिनों में स्थापित कर दिया जाएगा। 28 मई को ऑक्सीजन फ्लो की टेस्टिंग की जाएगी। बताया गया कि स्वास्थ्य सेवा निदेशालय की तरफ से डॉक्टरों व पैरा मेडिकल स्टाफ की भर्ती के लिए प्रक्रिया जारी है। अन्य पदों के लिए भी प्रक्रिया चल रही है। बैठक में नेशनल हेल्थ मिशन के प्रबंध निदेशक यासीन चौधरी, जीएमसी की प्रिंसिपल डॉ. शशि सूदन शर्मा व अन्य अधिकारी मौजूद रहे।

https://www.amarujala.com/jammu/health-development-jammu-news-jammu-city-news-jmu235860255

DAILYEXCELSIOR.COM

Sun, 23 May 2021

CCI team visits upcoming DRDO hospital, seeks appointment of competent medicos

Jammu: The Chamber of Commerce and Industry team on Saturday visited the site of under-construction COVID health facility being established by Defence Research and Development Organization (DRDO) in collaboration with UT's Health Department at Bhagwati Nagar. Dr Narinder Singh Batyal, MS DRDO COVID -19 Hospital Jammu briefed the CCI team about the status of the construction and the upcoming modern and state of the art facilities which will help in augmenting the existing infrastructure in Jammu to cater to the needs of COVID-hit people.

After taking stock of the upcoming health facility, President CCI Jammu Arun Gupta said that the lightning speed with which the work is underway shows that how pace of things can be changed by proper planning and execution. He said that unlike other instances where the tax payers' money is ruthlessly squandered by lingering on the development projects, the DRDO has shown the way to make precise use of money and resources.

CCI team visiting under construction COVID hospital at Bhagwati Nagar, Jammu on Saturday.

He said that on completion, this hospital will be a real marvel of modern times because there is no such example where such a foolproof health facility has been raised in record number of days. He however maintained that the onus of making perfect use of this health facility lies on the shoulders of J&K's Health Department by appointing competent fleet of medicos which is capable of utilizing this health facility to the hilt and ensure that there is no wastage of resources by lethargy or carelessness. He exclaimed that had this facility was made available earlier a month or two, the colossal loss of lives would have been avoided and the situation on ground would have been much better.

The other office bearers of the CCI Jammu anticipated that the hospital will go a long way in alleviating the pressure on the other COVID dedicated hospitals in Jammu and will also help in ensuring better healthcare to the people being entrapped by the 'killer' virus corona. They also informed that CCI Jammu has come up with an initiative of providing free meals to the COVID patients and their attendants besides providing oxygen cylinders to the needy.

https://www.dailyexcelsior.com/cci-team-visits-upcoming-drdo-hospital-seeks-appointment-of-competent-medicos/

जागरण

Sun, 23 May 2021

जम्मू के डीआरडीओ अस्पताल में हो योग्य मेडिकल स्टाफ की तैनाती: चैंबर

चैंबर आफ कामर्स एंड इंडस्ट्री जम्मू ने भगवती नगर में निर्माणाधीन डीआरडीओ अस्पताल को इंजीनयरिंग का नायब नमूना करार देते हुए कहा है कि डीआरडीओ ने तो रिकॉर्ड समय में 500 बैड का यह अस्पताल लगभग तैयार कर लिया है और अस्पताल प्रदेश स्वास्थ्य विभाग के सुपुर्द भी हो जाएगा।

By Vikas Abrol

जम्मू: चैंबर आफ कामर्स एंड इंडस्ट्री जम्मू ने भगवती नगर में निर्माणाधीन डीआरडीओ अस्पताल को इंजीनयरिंग का नायब नमूना करार देते हुए कहा है कि डीआरडीओ ने तो रिकॉर्ड समय में 500 बैड का यह अस्पताल लगभग तैयार कर लिया है और दो-तीन दिन में यह अस्पताल प्रदेश स्वास्थ्य विभाग के सुपुर्द भी हो जाएगा। अब प्रदेश सरकार का यह दायित्व बनता है कि इस अस्पताल में योग्य मेडिकल स्टाफ की तैनाती की जाए ताकि जम्मू के लोगों को इस अस्पताल में उचित उपचार मिल सके और जम्मू में कोरोना के कारण हो रही मौतों पर अंकुश लग सके।

डीआरडीओ ने रिकॉर्ड समय में अस्पताल तैयार करके बड़ी राहत दी है

चैंबर के प्रधान अरूण गुप्ता शनिवार को अन्य पदाधिकारियों के साथ भगवती नगर गए और उन्होंने निर्माणाधीन अस्पताल का दौरा कर निर्माण कार्य का जायजा लिया। डीआरडीओ की प्रशंसा करते हुए चैंबर प्रधान ने कहा कि जिस तरह से जम्मू के गवर्नमेंट मेडिकल कॉलेज अस्पताल बख्शी नगर व अन्य अस्पतालों में मरीजों को बैड नहीं मिल रहे थे। मरीज ऑक्सीजन के लिए दर-बदर हो रहे थे, ऐसे हालात में डीआरडीओ ने रिकॉर्ड समय में अस्पताल तैयार करके बड़ी राहत दी है।

इस अस्पताल में 500 बैड होंगे और सभी में ऑक्सीजन का प्रबंध होगा

चैंबर प्रधान ने कहा कि इस अस्पताल में 500 बैड होंगे और सभी में ऑक्सीजन का प्रबंध होगा जो बड़ी बात है। चैंबर प्रधान ने कहा कि डीआरडीओ ने पैसे के सही इस्तेमाल की मिसाल कायम की है। आमतौर पर सरकारी स्तर पर जनता के पैसे का कैसे दुरुपयोग होता है, वो अधर में लटकी योजनाओं को देखकर लगाया जा सकता है। चैंबर प्रधान ने कहा कि डीआरडीओ ने तो अपना फर्ज निभा दिया लेकिन अब प्रदेश सरकार की यह जिम्मेदारी बनती है कि वो यहां योग्य मेडिकल स्टाफ की तैनाती करें ताकि लोगों को उचित उपचार मिल सके।

https://www.jagran.com/jammu-and-kashmir/jammu-chamber-of-commerce-demands-deployment-of-qualified-medical-staff-at-drdo-hospital-in-jammu-21667099.html

THE TIMES OF INDIA

Sat, 22 May 2021

AP Chief Minister YS Jagan Mohan Reddy directs health dept to procure DRDO's 2-DG

Visakhapatnam: Chief minister YS Jagan Mohan Reddy has directed the state health department to procure the anti-Covid-19 drug, 2-deoxy-D-glucose (2-DG), developed by the Defence Research and Development Organisation (DRDO), said principal secretary (health and family welfare) Anil Kumar Singhal on Friday.

Chief minister YS Jagan Mohan Reddy has directed the state health department to procure the anti-Covid-19 drug, 2-deoxy-D-glucose (2-DG), developed by the Defence Research and Development Organisation (DRDO), said principal secretary (health and family welfare) Anil Kumar Singhal on Friday.

Speaking to the media, Singhal said that the purchase committee will take a decision on the same in its meeting on Saturday.

The principal secretary further said that of the 38,763 patients availing treatment in various Covid-19 hospitals as of Friday afternoon, 28,189 patients are being treated under Aarogyasri. "This translates to about 77% of total hospital cases getting free treatment under the state's flagship health scheme," Singhal said.

The principal secretary added that the 104 call centre received 10,919 calls between 4pm on Thursday and 4pm on Friday, a significant drop from nearly 18,000 daily calls received a week ago.

On the 'Krishnapatnam medicine', the principal secretary said that a detailed scientific exercise has been planned to study its efficacy. "Officials from the Ayush department are currently in the village and are speaking to those Covid-19 patients and general public who used the medicine," said Singhal.

https://timesofindia.indiatimes.com/city/visakhapatnam/jagan-directs-health-dept-to-procure-drdos-2-dg/articleshow/82841703.cms

DRDO on Twitter

A. Bharat Bhushan Babu @SpokespersonMoD · 14h

Yet another breakthrough by @DRDO_India in the fight against #COVID19! Develops an antibody detection-based kit #DIPCOVAN with 97% sensitivity & 99% specificity. It can help understand the epidemiology of the virus & assess previous SARS-CoV-2 exposure. #harkaamdeshkenaam

PIB India @PIB_India · 20h

.@DRDO_India develops #COVID19 antibody detection kit 'DIPCOVAN'

The kit will be very useful for understanding COVID-19 epidemiology and assessing an individual's previous SARS-CoV-2 exposure.

Read: pib.gov.in/PressReleasePa...

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Fri, 21 May 2021 8:03AM

Army Chief reviews operational readiness & security situation in north-east

Indian Army Chief General MM Naravane arrived at Dimapur (Nagaland) on 20 May 2021 on a two day visit to review the operational readiness along the Northern Borders of Arunachal Pradesh and security situation in hinterland of North East.

On arrival at the Corps Headquarters in Dimapur, the Army Chief was briefed by Lieutenant General Johnson Mathew, General Officer Commanding Spear Corps and the Division Commanders on the prevailing situation and operational preparedness along the Northern borders.

The COAS complimented all ranks for maintaining excellent vigil and exhorted them to stay alert and keep watch on activities along the LAC.

The Army Chief is scheduled to return back to New Delhi on 21 May 2021.

https://pib.gov.in/PressReleasePage.aspx?PRID=1720481

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 21 May 2021 8:03AM

सेना प्रमुख ने पूर्वोत्तर में सैन्य तैयारी और सुरक्षा हालात का जायजा लिया

सेना प्रमुख जनरल एमएम नरवणे दो दिन के दौरे पर 20 मई, 2021 को दिमापुरा (नगालैंड) पहुंचे। उनके दौरे का उद्देश्य अरुणाचल प्रदेश की उत्तरी सरहद पर सैन्य तैयारी और पूर्वोत्तर के दूर-दराज के इलाको में सुरक्षा हालात का जायजा लेना था।

दिमापुर के कोर मुख्यालय पहुंचने पर सेना प्रमुख को जनरल ऑफीसर कमांडिंग स्पियर कोर ले.जन. जॉनसन मैथ्यू और डिविजन कमांडरों ने पूर्वोत्तर सीमा पर सैन्य तैयारी और मौजूदा हालात से अवगत कराया।

सेना प्रमुख ने शानदार चौकसी कायम रखने के लिये सभी सैन्य कर्मियों की सराहना की। उन्होंने कहा कि सेना हर वक्त चौकस रहे और एल.ए.सी. पर होने वाली गतिविधियों पर कड़ी नजर रखे।

कार्यक्रम के अनुसार सेना प्रमुख 21 मई, 2021 को नई दिल्ली लौट आयेंगे।

https://pib.gov.in/PressReleasePage.aspx?PRID=1720516

Press Information Bureau
Government of India

Ministry of Defence

Fri, 21 May 2021 9:06PM

INS Rajput decommissioned

The Indian Navy's first destroyer INS Rajput was decommissioned at Naval Dockyard, Visakhapatnam after serving the nation for 41 glorious years on Friday, 21 May 21. The ship was decommissioned in a solemn and low key event due to the ongoing COVID Pandemic when the National Flag, Naval Ensign, and the Decommissioning Pennant were lowered at sunset time in the presence of Vice Admiral Ajendra Bahadur Singh, AVSM, VSM Flag Officer Commanding-in-Chief Eastern Naval Command, the Chief Guest for the ceremony. In recognition of the yeoman service rendered to the nation by the ship, a Special Postal Cover was released by the Chief Guest on the occasion.

INS Rajput was commissioned on 04 May 1980, at Poti, Georgia (erstwhile USSR), as the lead ship of the Rajput Class Destroyers of the Indian Navy with Capt (later Vice Admiral) Gulab Mohanlal Hiranandani as the first Commanding Officer. During her service, the ship had the distinction of being part of both the Western and Eastern Fleets. She was based in Mumbai till Jun 1988 and thereafter was re-based at Visakhapatnam as part of the Eastern Fleet.

Endowed with menacing looks, the ship was equipped with an array of weapons and sensors which included, surface-to-surface missiles, surface-to-air missiles, anti-aircraft guns, torpedoes, and anti-submarine rocket launchers. INS Rajput was also the first ship to be fitted out to fire the supersonic cruise and long-range *BrahMos* missile. She was also the first Indian Naval ship to get affiliated with an Indian Army Regiment '*the Rajput Regiment'*.

Apart from participating in various naval operations like Op *Pawan*, Operation *Aman*, Operation *Cactus*, and various multinational exercises, the ship was a flag bearer of the Indian Navy's benign role by participating in various relief operations which include cyclone relief operations off Odisha Coast in 1999, relief operations post Tsunami in Andaman & Nicobar Islands in 2004 and HADR mission after the earthquake at Jakarta.

In her glorious service to the nation, the ship has been helmed by 31 Commanding Officers. The ship since its commissioning has sailed a distance of over 7,87,194 nautical miles which is equivalent to navigating around the world 36.5 times and 3.8 times the distance from Earth to Moon.

The decommissioning ceremony was attended by very few officers and sailors from the Eastern Fleet and other organisations of ENC whilst adhering to the COVID protocols. The event was live-streamed on the internet and Naval intranet for the benefit of a larger audience viz., serving personnel, veterans, and outstation ex-crew who had served onboard the ship. The virtual attendees included Vice Adm Atul Kumar Jain, Chief of Integrated Defence Staff to the Chairman Chiefs of Staff Committee, former Commanding Officers and, Officers and Sailors of the Commissioning Crew.

https://pib.gov.in/PressReleasePage.aspx?PRID=1720758

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 21 May 2021 9:06PM

आईएनएस राजपूत कार्यमुक्त

भारतीय नौसेना के पहले विध्वंसक जहाज़ आईएनएस राजपूत को शुक्रवार, दिनांक 21 मई 2021 को 41 गौरवशाली वर्षों तक राष्ट्र की सेवा करने के बाद विशाखापत्तनम के नौसेना डॉकयार्ड में कार्यमुक्त कर दिया गया। इस जहाज़ को मुख्य अतिथि वाइस एडमिरल अजेंद्र बहादुर सिंह, एवीएसएम, वीएसएम, फ्लैग ऑफिसर कमांडिंग इन चीफ, ईस्टर्न नेवल कमांड की उपस्थिति में कोरोना महामारी को देखते हुए एक सादे समारोह में राष्ट्रीय ध्वज, नेवल इनसाइन और डीकमीशनिंग पैनेंट को सूर्यास्त के समय झुकाकर कार्यमुक्त कर दिया गया। जहाज द्वारा राष्ट्र को प्रदान की गई अभूतपूर्व सेवा की स्मृति में इस अवसर पर मुख्य अतिथि द्वारा एक विशेष डाक कवर जारी किया गया।

आईएनएस राजपूत को दिनांक 04 मई 1980 को पोटी, जॉर्जिया (तत्कालीन यूएसएसआर) में कैप्टन (बाद में वाइस एडमिरल) गुलाब मोहनलाल हीरानंदानी के साथ भारतीय नौसेना के राजपूत क्लास विध्वंसक के प्रमुख जहाज के रूप में कमीशन किया गया था। अपनी सेवा के दौरान जहाज को पश्चिमी और पूर्वी दोनों बेड़ों का हिस्सा बनने का गौरव प्राप्त हुआ। यह पोत जून 1988 तक मुंबई में स्थित था एवं तत्पश्चात पूर्वी बेड़े के भाग के तौर पर नये सिरे से विशाखापत्तनम भेजा गया।

एक शूरवीर सी भाव भंगिमा से लैस यह जहाज़ हथियारों और सेंसरों की श्रृंखला से सुसज्जित था जिसमें सतह से सतह पर मार करने वाली मिसाइलें, सतह से हवा में मार करने वाली मिसाइलें, विमान रोधी बंदूकें, टारपीडो और पनडुब्बी रोधी रॉकेट लांचर शामिल थे। आईएनएस राजपूत सुपरसोनिक क्रूज मिसाइल व लंबी दूरी की ब्रह्मोस मिसाइल को दागने की क्षमता वाला पहला पोत भी था। वह भारतीय सेना की रेजिमेंट 'राजपूत रेजिमेंट' से संबद्ध होने वाला भारतीय नौसेना का पहला जहाज भी था।

ऑपेरशन पवन, ऑपरेशन अमन, ऑपरेशन कैक्टस और विभिन्न बहुराष्ट्रीय अभ्यासों जैसे विभिन्न नौसैनिक अभियानों में भाग लेने के अलावा, यह पोत विभिन्न राहत अभियानों में हिस्सा लेने वाला भारतीय नौसेना का ध्वजवाहक था जिसमें 1999 में ओडिशा तट पर चक्रवात राहत अभियान, 2004 में अंडमान एवं निकोबार द्वीप समूह में सुनामी के बाद राहत अभियान और जकार्ता में भूकंप के बाद मानवीय सहायता तथा आपदा राहत (एचएडीआर) मिशन शामिल हैं।

राष्ट्र के लिए अपनी शानदार सेवा में जहाज की कमान 31 कमांडिंग अधिकारियों ने संभाली। इसके कमीशन होने के बाद से जहाज ने 7,87,194 नॉटिकल मील से अधिक की दूरी तय की है जो विश्व भर को 36.5 बार जल भ्रमण करने के बराबर है तथा पृथ्वी से चंद्रमा की दूरी 3.8 गुना है।

कार्यमुक्त किए जाने के समारोह में पूर्वी बेड़े तथा पूर्वी नौसेना कमान के अन्य संगठनों के बहुत कम अधिकारियों और नाविकों ने कोविड प्रोटोकॉल का पालन करते हुए भाग लिया। इस घटना का एक बड़े दर्शक वर्ग, मसलन सेवारत कर्मी, पूर्व नौसैनिक एवं अन्य स्थानों पर मौजूद चालक दल के भूतपूर्व सदस्य

जिन्होंने पोत पर अपनी सेवाएं दी थीं- के लिए इंटरनेट एवं नौसेना के इंट्रानेट पर सीधा प्रसारण किया गया था। इस अवसर पर वाइस एडमिरल अतुल कुमार जैन, चीफ ऑफ इंटीग्रेटेड डिफेंस स्टाफ टू द चेयरमैन चीफ्स ऑफ स्टाफ कमिटी, पूर्व कमांडिंग अधिकारी तथा कमीशनिंग क्रू के अधिकारी एवं नाविक शामिल थे।

https://pib.gov.in/PressReleasePage.aspx?PRID=1720806

NEWS 18

Sun, 23 May 2021

Border issues can't be resolved overnight, Can't afford to lose ground: CDS Bipin Rawat

Calling for a holistic view of advantages on the Indian side, General Rawat said, India has the upper hand against China due to the tactical altitude advantage of the Indian air force operations

By Marya Shakil

New Delhi: India is standing firm at its northern border with China, said Chief of Defence Staff (CDS), General Bipin Rawat, on Saturday, adding the country will lose no part of its sovereign territory without a fight.

File photo of Chief of Defence Staff General Bipin Rawat.

In an exclusive interview with CNN-News18, General Rawat said, “the Indian armed forces have been given the tasks to ensure the sanctity of our borders are maintained and no part of our territory is lost without a fight. The Service Chiefs and I have said that we need to be prepared and any misadventure from our adversaries will be dealt with firmly."

The remark comes a day after Chief of Army Staff Gen M M Naravane, commenting on the Chinese military conducting a drill in its training areas near the Ladakh region, said India is keeping a constant eye on the activities.

Noting that the three services are entrusted to carry tasks, utilise resources in a coordinated manner and give updates for any other support needed from the government, he said, “whether China has attempted any misadventure or not only time will tell. But, as of now, we are standing firm on the ground and we are not likely to relent under pressure."

Amid strained relationship between India and China following a deadly clash in the Galwan valley in eastern Ladakh in June last year, both sides have completed the withdrawal of troops and weapons from Pangong lake’s North and South banks in February following a series of military and diplomatic talks. The two sides are now engaged in talks to extend the disengagement process to the remaining friction points.

The talks have remained at a stalemate as the Chinese forces did not show flexibility in their approach on disengagement of troops in the remaining friction at the 11th round of military talks with the Indian Army on April 9.

Commenting on the talks, the CDS said boundary settlement are complex issues. “We all understand the complexity we face at our borders with China and Pakistan. These cannot be resolved overnight and it is impossible to predict how long this would take. All I can say is that all effort is being made to resolve the issues on mutually acceptable terms. No country would want to

lose tactical advantages when we settle our borders. Border settlement will take place based on the way the government wants it. We also have to look at how adversaries want the border settlement. We can not afford to lose any ground, so we are maintaining what is there now."

Reacting to the report by Chinese state media on the PLA updating its equipment deployed along the Indian borders, including employing the latest type 15 lightweight tanks, powerful PCL-181 155-millimetre self-propelled howitzer and drones modified for high-plateau conditions, General Rawat said India has heavy weight tanks and advantageous terrain on its side.

Citing Chief of Army Staff Gen M M Naravane statement on the Indian military responding in equal measure to the Chinese, the CDS said, “we have got T-90 tanks which is an excellent and heavyweight tank capable of taking on any light tank in the world. We have also got other weapon systems."

Partially admitting to China having access to better technology, Rawat said, “While China might have better technology, we have better resolute and will of our armed forces. We also have a terrain advantage on our side. In the Himalayan range, our soldiers are sitting on the dominating heights."

Calling for a holistic view of advantages on the Indian side, General Rawat said, “we have the upper hand against China due to the altitude at which our air force operates."

However, he warned against China’s non-contact warfare capacities. “We should not get too much concerned about equipment that they are getting, but need to look at the technological advancements that the Chinese are carrying out particularly in the field of non-contact warfare, cyber, space and artificial intelligence. These are the aspects we need to focus on. We have to now look at incorporating technology into warfare and is currently being looked at."

https://www.news18.com/news/india/border-issues-cant-be-resolved-overnight-cant-afford-to-lose-ground-cds-bipin-rawat-3766082.html

The Indian EXPRESS

Sun, 23 May 2021

China's 1st Mars rover steps out to explore red planet

The lander carrying the rover touched down in the southern part of Utopia Planitia, a vast plain on the northern hemisphere of Mars, on May 15

Beijing: China's first Mars rover on Saturday drove down from its landing platform to the Martian surface to start exploring the surface of the red planet.

The six-wheeled solar-powered rover named Zhurong, resembling a blue butterfly and with a mass of 240 kg, slowly trundled off a ramp on the lander to hit the red, sandy soil of Mars, starting its journey to explore the fourth planet from the Sun, the China National Space Administration (CNSA) said.

China's Tianwen-1 mission, consisting of an orbiter, a lander and a rover, was launched on July 23, 2020.

The lander carrying the rover touched down in the southern part of Utopia Planitia, a vast plain on the northern hemisphere of Mars, on May 15.

Chinese spacecraft landed on Mars three months after the successful landing of the US space agency NASA's Perseverance rover which is busy exploring the red planet's surface with a helicopter hovering around.

The Tianwen-1 spacecraft had been orbiting Mars since February (Image source : CNSA/Xinhua/Alamy)

With an expected lifespan of at least 90 Martian days (about three months on the Earth), Zhurong will record the Martian landscape with high-resolution three-dimensional images, analyse the material composition of the planet's surface, detect its subsurface structure and magnetic field, search for traces of water, ice and observe the surrounding meteorological environment, state-run Xinhua news agency reported.

It carries various scientific instruments, including terrain camera, multi-spectral camera, subsurface exploration radar, surface-composition detector, magnetic-field detector and meteorology monitor.

The orbiter, with a design life of one Martian year (about 687 days on the Earth), will relay communications for the rover while conducting its own scientific detection operations.

Compared with China's lunar rover Yutu (Jade Rabbit), Zhurong has a similar speed of about 200 meters per hour, but the height of the obstacles it can surmount increased from 20 cm to 30 cm. It can climb slopes up to 20 degrees.

Zhurong's six wheels are independently driven, according to its designers.

The US has deployed five rovers on Mars, besides a helicopter.

The active suspension system of the rover could help it to get out of trouble by moving like an inchworm on the complicated Martian surface with both loose sandy soil and densely distributed rocks, said Jia Yang, deputy chief designer of the Tianwen-1 probe from the China Academy of Space Technology.

Zhurong can also walk sideways like a crab. Each of its six wheels can turn in any direction, which could be used for avoiding obstacles and climbing slopes.

Mars is farther away from the Sun than the Earth and the moon, and the Martian atmosphere also reduces sunlight, so the solar panels of the Mars rover are about twice that of the lunar rover.

They need to be rotatable to follow the Sun, said Geng Yan, an official at the Lunar Exploration and Space Program Center of the CNSA.

Zhurong's solar panels were specially designed to adapt to the sunlight on Mars, which has a spectrum different from that on the Earth's orbit, Geng said.

Mars is notorious for its sand storms, and the dust could reduce the efficiency of power generation. The specially processed solar panels make it difficult for dust to accumulate, just like the water drops on the lotus leaf, which can be blown away by the wind, Geng said, adding that the robotic Zhurong will operate with a cycle in the order of environmental perception, scientific exploration and movement.

The one-way communication time delay of about 20 minutes between the Earth and Mars due to the long distance between the two planets requires the Mars rover to operate and deal with complex problems autonomously since ground control may not be timely.

In the case of a sandstorm, Zhurong can decide when to cancel its work and "go to sleep" autonomously and wake up when sunlight is sufficient again.

"When designing the Mars rover, we had many rounds of brainstorms to create a powerful and pretty rover that could represent the best level of Chinese space engineers," Jia added.

China's space programme has suffered relatively few setbacks since it first put an astronaut into orbit in 2003, although the space station launch was delayed by the failure of an earlier version of the massive Long March 5B rocket.

China earlier launched two smaller experimental space stations.

It has been excluded from the International Space Station largely at the insistence of the US, which is wary of the secrecy surrounding the Chinese space programme and its close links to the military.

Congressional approval is also required for any cooperation between NASA and the CNSA

The Egyptian delegations arrived in Israel and the Palestinian territories Friday, according to Egypt's official MENA news agency. The delegations met with Palestinian factions in Gaza directly after they arrived, MENA reported.

Hussein Sheikh, a senior aide to Palestinian President Mahmoud Abbas, tweeted that one of the Egyptian delegation planned to hold talks with the Palestinian leadership in Ramallah on Saturday.

https://indianexpress.com/article/technology/science/chinas-1st-mars-rover-steps-out-to-explore-red-planet/

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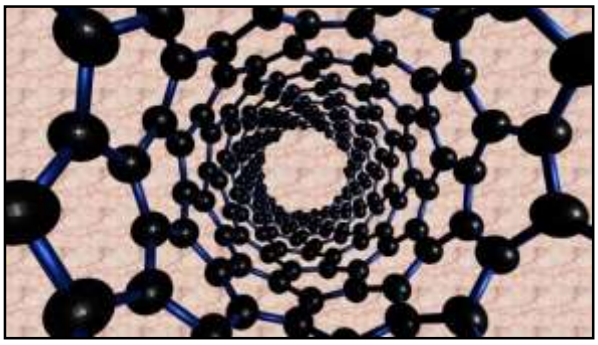
Sat, 22 May 2021

New method for observes graphene growing using standard electron microscope

Researchers from the University of Surrey have revealed a new method that enables common laboratory scanning electron microscopes to see graphene growing over a microchip surface in real time.



Credit: Pixabay/CC0 Public Domain

This discovery, published in ACS Applied Nano Materials, could create a path to control the growth of graphene in production factories and lead to the reliable production of graphene layers.

Dispensing with the use of expensive bespoke systems, the new technique not only produces graphene sheets reliably but also allows to use fast-acting catalysts that reduce growth times from several hours to only a few minutes.

With the use of video imagining, the team from Surrey's Advanced Technology Institute (ATI) have shown graphene growing over an iron catalyst, using a silicon nitride membrane produced within a silicon chip. The membrane is only a few tens of nanometres thin, and heating and cooling can be rapidly controlled by means of modulating an electrical signal that is sent to the iron layer. This acts both as a catalyst and as an electrical resistor to supply the heat.

The imaging uses Fermi-level contrast to visualize doping levels of graphene. This contrast mechanism can be used to identify the point of electrical contact between neighboring graphene flakes. This imaging reveals also that physical contact alone between flakes is not sufficient to form electronic contact, which suggests additional bonding is required before electrons are able to jump from flake to flake.

Professor Ravi Silva, director of ATI and head of the Nano-Electronics Center at the University of Surrey, said, "Graphene, the wonder material of the 21st century, has had much written about its unique and remarkable properties over the last decade. It will be widely used if it can be handled expertly and placed easily in applications. To do this, there need to be routes of observing graphene and precisely placing it on devices. In the research paper, one such route—using a standard electron microscope found in most well-resourced laboratories— is exemplified. We hope this work will encourage many more applications and discoveries of graphene for practical use."

Dr. Jose Anguita, cleanroom manager at ATI at the University of Surrey, said: "Being able to see and control the graphene we are producing in real-time edges us a significant step closer to mass commercialisation and production of graphene for electronic devices."

More information: José V. Anguita et al, Layer-by-Layer Growth of Graphene Sheets over Selected Areas for Semiconductor Device Applications, *ACS Applied Nano Materials* (2021). DOI: 10.1021/acsanm.1c00620

https://phys.org/news/2021-05-method-graphene-standard-electron-microscope.html

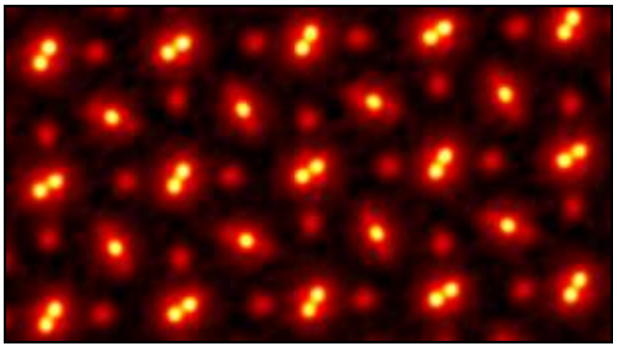
PHYS.ORG

Sat, 22 May 2021

Researchers see atoms at record resolution

By David Nut

In 2018, Cornell researchers built a high-powered detector that, in combination with an algorithm-driven process called ptychography, set a world record by tripling the resolution of a state-of-the-art electron microscope.



This image shows an electron ptychographic reconstruction of a praseodymium orthoscandate ($PrScO_3$) crystal, zoomed in 100 million times. Credit: Cornell University

As successful as it was, that approach had a weakness. It only worked with ultrathin samples that were a few atoms thick. Anything thicker would cause the electrons to scatter in ways that could not be disentangled.

Now a team, again led by David Muller, the Samuel B. Eckert Professor of Engineering, has bested its own record by a factor of two with an electron microscope pixel array detector (EMPAD) that incorporates even more sophisticated 3D reconstruction algorithms.

The resolution is so fine-tuned, the only blurring that remains is the thermal jiggling of the atoms themselves.

The group's paper, "Electron Ptychography Achieves Atomic-Resolution Limits Set by Lattice Vibrations," published May 20 in *Science*. The paper's lead author is postdoctoral researcher Zhen Chen.

"This doesn't just set a new record," Muller said. "It's reached a regime which is effectively going to be an ultimate limit for resolution. We basically can now figure out where the atoms are in a very easy way. This opens up a whole lot of new measurement possibilities of things we've wanted to do for a very long time. It also solves a long-standing problem—undoing the multiple scattering of the beam in the sample, which Hans Bethe laid out in 1928—that has blocked us from doing this in the past."

Ptychography works by scanning overlapping scattering patterns from a material sample and looking for changes in the overlapping region.

"We're chasing speckle patterns that look a lot like those laser-pointer patterns that cats are equally fascinated by," Muller said. "By seeing how the pattern changes, we are able to compute the shape of the object that caused the pattern."

The detector is slightly defocused, blurring the beam, in order to capture the widest range of data possible. This data is then reconstructed via complex algorithms, resulting in an ultraprecise image with picometer (one-trillionth of a meter) precision.

"With these new algorithms, we're now able to correct for all the blurring of our microscope to the point that the largest blurring factor we have left is the fact that the atoms themselves are wobbling, because that's what happens to atoms at finite temperature," Muller said. "When we talk about temperature, what we're actually measuring is the average speed of how much the atoms are jiggling."

The researchers could possibly top their record again by using a material that consists of heavier atoms, which wobble less, or by cooling down the sample. But even at zero temperature, atoms still have quantum fluctuations, so the improvement would not be very large.

This latest form of electron ptychography will enable scientists to locate individual atoms in all three dimensions when they might be otherwise hidden using other imaging methods. Researchers will also be able to find impurity atoms in unusual configurations and image them and their

vibrations, one at a time. This could be particularly helpful in imaging semiconductors, catalysts and quantum materials—including those used in quantum computing—as well as for analyzing atoms at the boundaries where materials are joined together.

The imaging method could also be applied to thick biological cells or tissues, or even the synapse connections in the brain—what Muller refers to as "connectomics on demand."

While the method is time-consuming and computationally demanding, it could be made more efficient with more powerful computers in conjunction with machine learning and faster detectors.

"We want to apply this to everything we do," said Muller, who co-directs the Kavli Institute at Cornell for Nanoscale Science and co-chairs the Nanoscale Science and Microsystems Engineering (NEXT Nano) Task Force, part of Cornell's Radical Collaboration initiative. "Until now, we've all been wearing really bad glasses. And now we actually have a really good pair. Why wouldn't you want to take off the old glasses, put on the new ones, and use them all the time?"

More information: Electron ptychography achieves atomic-resolution limits set by lattice vibrations. *Science*, 21 May 2021: DOI: 10.1126/science.abg2533

Journal information: *Science*

https://phys.org/news/2021-05-atoms-resolution.html

PHYS.ORG

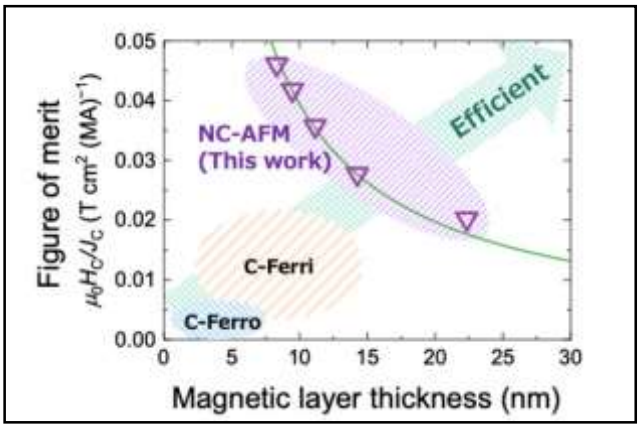
Sat, 22 May 2021

A new spintronic phenomenon: Chiral-spin rotation found in non-collinear antiferromagnet

Researchers at Tohoku University and the Japan Atomic Energy Agency (JAEA) have discovered a new spintronic phenomenon—a persistent rotation of chiral-spin structure.

Their discovery was published in the journal *Nature Materials* on May 13, 2021.

Tohoku University and JAEA researchers studied the response of chiral-spin structure of a non-collinear antiferromagnet Mn_3Sn thin film to electron spin injection and found that the chiral-spin structure shows persistent rotation at zero magnetic field. Moreover, their frequency can be tuned by the applied current.



A figure of merit, defined as the ratio of critical field HC to critical current density JC to manipulate magnetic structure, as a function of magnetic layer thickness for non-collinear antiferromagnet (NC-AFM) as seen in this study. Also shown here is a previously studied collinear ferromagnet (C-Ferro) and ferrimagnet (C-Ferri). Credit: S.Fukami

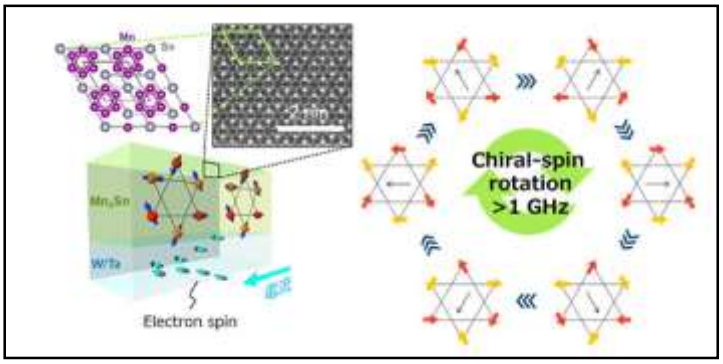
"The electrical control of magnetic structure has been of paramount interest in the spintronics community for the last quarter of a century. The phenomenon shown here provides a very efficient scheme to manipulate magnetic structures, offering new opportunities for application, such as oscillators, random number generators, and nonvolatile memory," said Professor Shunsuke Fukami, who spearheaded the project.

Figure 1 compares the efficiency of manipulating the magnetic structure on a non-collinear antiferromagnet, as seen in the present work, with those reported for other material systems. The current-induced chiral-spin rotation is much more efficient even for thick magnetic layers above 20 nm.

The schematics of chiral-spin rotation as well as the experimental setup are shown in figure 2.

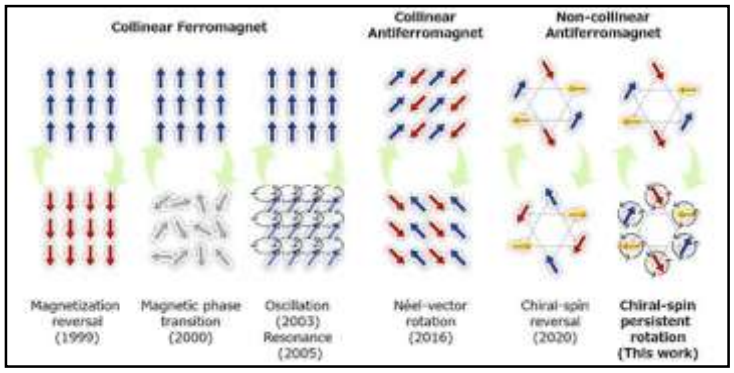
The researchers used a high-quality heterostructure consisting of non-collinear antiferromagnet Mn_3Sn sandwiched between heavy metals W/Ta and Pt. They revealed that, when a current is applied to the heterostructure, the chiral-spin structure rotates persistently at zero magnetic field because of the torque originating from the spin current generated in the heavy metals. Meanwhile, the rotation frequency, typically above 1 GHz, depends on the applied current.

Spintronics is an interdisciplinary field, where electric and magnetic degrees of freedom of electrons are utilized simultaneously, allowing for an electrical manipulation of magnetic structure. Representative schemes established so far are summarized in figure 3.



A schematic of experiment and chiral-spin persistent rotation found in this study. Credit: S.Fukami

Magnetization switching, magnetic-phase transition, oscillation, and resonance have been observed in ferromagnets, which are promising since they may lead to the realization of functional devices in nonvolatile memory, wireless communication, and so on.



Representative examples of electrical control of magnetism. Credit: S.Fukami

Additionally, in antiferromagnets, the 90-degree rotation of Néel vector in collinear systems and the 180 degree switching of chiral-spin structures in non-collinear systems have been observed recently. The chiral-spin persistent rotation in the current work is totally different from all the previously found phenomena and thus should open a new horizon of the spintronics research.

"The obtained insight is not only interesting in terms of physics and material science but also attractive for functional device applications," added Dr. Yutaro Takeuchi, the first author of the paper. "We would like to further improve the material and device technique in the near future and demonstrate new functional devices such as tunable oscillator and high-quality true random number generator."

More information: Yutaro Takeuchi et al, Chiral-spin rotation of non-collinear antiferromagnet by spin–orbit torque, *Nature Materials* (2021). DOI: 10.1038/s41563-021-01005-3

Journal information: *Nature Materials*

https://phys.org/news/2021-05-spintronic-phenomenon-chiral-spin-rotation-non-collinear.html

mint

Mon, 24 May 2021

Dogs can detect Covid-19 infections even when patients are asymptomatic: Study

Using their remarkable sense of smell dogs have already shown that they can sniff out maladies such as cancer, malaria and epilepsy

Dogs can be trained to detect more than 90 percent of Covid-19 infections even when patients are asymptomatic, according to research published Monday, which authors hope could help replace the need to quarantine new arrivals.

Using their remarkable sense of smell -- which can pick up the equivalent of half a teaspoon of sugar in an olympic-sized swimming pool -- dogs have already shown that they can sniff out maladies such as cancer, malaria and epilepsy.

Several previous studies have shown proof-of-concept that dogs can detect SARS-CoV-2.

Researchers from the London School of Tropical Medicine wanted to see if dogs could detect a distinctive odour given off from chemical compounds associated with someone who is Covid positive but doesn't show symptoms.

They gathered samples of clothing and face masks from people who had tested positive for mild or symptomatic SARS-CoV-2.

Samples of the socks of 200 Covid-19 cases were collected and arranged in lab tests for six dogs that had been trained to indicate either a presence or absence of the chemical compound.

The dogs needed to be trained not to identify "false positives" in a bid to hack their reward system and obtain treats even if there were no Covid-19 samples in a given test.

"This means that the dog fully understands and gets a reward for a correct negative as well as a correct positive," said Claire Guest, from the school's Faculty of Infectious and Tropical Diseases.

Overall, the dogs were successfully able to identify between 94 and 82 percent of SARS-CoV-2 samples.

The researchers then modelled how effectively these success rates, combined with traditional PCR tests, could help detect mild or asymptomatic Covid-19 cases.

They found that using dogs to screen arrivals at terminuses such as airports could detect 91 percent of cases, resulting in a 2.24 times lower rate of transmission than with PCR tests alone.

- 'Important start' -

Authors of the research, which has yet to be peer-reviewed, said they hoped it could eventually replace the need for travellers to quarantine -- which necessarily disrupts every arrival even though the vast majority are not Covid positive.

"The key thing is that dogs are significantly quicker than other tests," said co-author James Logan.

"What we're suggesting is that dogs would give the first initial screening, and then those (arrivals) that were indicated as positive would then receive a complimentary PCR test."

The team said that out of a plane full of arrivals -- around 300 people -- less than one percent were statistically likely to be carrying SARS-CoV-2.

Under current quarantine regulations employed by some countries, all 300 would need to isolate, causing significant inconvenience.

But given the sensitivity of trained dogs, a maximum of 35 people on board would be indicated as positive, the paper said.

Of these, only around 3 would be expected to return a positive PCR test.

"This is a really important start and could lead to a useful, usable system," said Mick Bailey, professor of Comparative Immunology at the University of Bristol, who was not involved in the research.

"But there's a lot more validation needs to be done before we could be confident that the dogs can reliably and specifically detect asymptomatic SARS-CoV-2 infection in people in airports and train stations."

(This story has been published from a wire agency feed without modifications to the text. Only the headline has been changed.)

https://www.livemint.com/science/health/dogs-can-detect-covid-19-infections-even-when-patients-are-asymptomatic-study-11621816710074.html