

Latest developments on products and services from the industry. To have your news included contact Patricia McDonnell at Oncology News on T/F: +44 (0)288 289 7023, E: patricia@oncologynews.biz

Provectus taking novel path to treat cancer

Rather than taking a biochemistry approach to develop drugs that kill cancer cells, Provectus Biopharmaceuticals is using physical chemistry by harnessing the unique properties of Rose Bengal, a first-in-class halogenated xanthene.

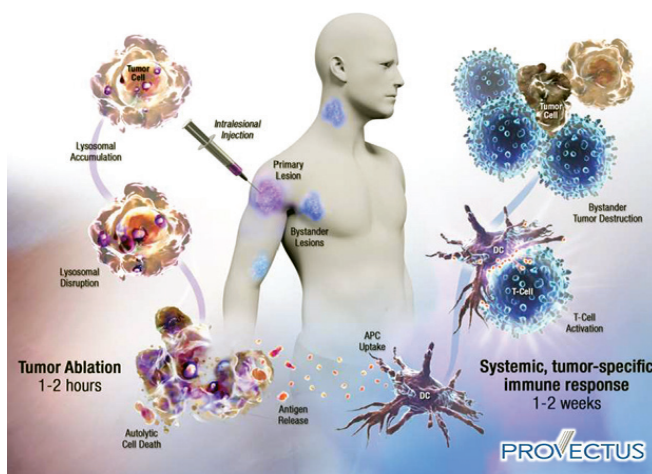
"We are taking a different type of molecule and a different basis for the mechanism of action than has been used in the industry," Peter Culpepper, CFO and COO, said in an interview with BioTuesdays.com.

"Our PV-10 drug candidate has the potential to be employed in the treatment of all solid tumour cancers like melanoma, liver and breast, without the typical safety issues, as demonstrated thus far in clinical testing," he contended. "Those are the cancers we're focusing on."

In addition, he said PV-10, which recently entered Phase 3 testing for the treatment of melanoma, has the potential to be used before, during and after surgery, and in combination with other therapeutic agents and therapies, and after all else fails. The technology is protected by some 60 US and international patents.

PV-10 is a new category of ablative immunotherapy made from an active ingredient, Rose Bengal, which has a long history of clinical use and an established FDA safety profile in liver and ophthalmic diagnostics, Mr Culpepper pointed out. "We are the first company to use Rose Bengal as a therapeutic."

For further information visit www.pvct.com



Provectus Biopharmaceuticals' poster presentation on PV-10 clinical data from phase 1 study for cancers of the liver presented at 17th World Congress on Gastrointestinal Cancer

Provectus Biopharmaceuticals, Inc have announced that the abstract titled, "Phase 1 Study of PV-10 for Chemoablation of Hepatocellular Cancer and Cancer Metastatic to the Liver," was presented at the European Society for Medical Oncology's 17th World Congress on Gastrointestinal Cancer. Sanjiv S Agarwala, MD, of St Luke's University Hospital and Health Network, Bethlehem, PA, was the presenter.

Dr Craig Dees, PhD, CEO of Provectus, said, "We are very pleased that Dr Agarwala presented this important information to the World Congress on Gastrointestinal Cancer. While our research into PV-10 as a treatment for melanoma continues, we are equally committed to determining its safety and efficacy in the treatment of other types of cancer. We are optimistic that PV-10 will prove to be a useful weapon against a wide variety of cancers."

PV-10, a 10% solution of Rose Bengal that is currently being investigated as a potential cancer therapeutic, is designed for injection into solid tumours (intralesional administration).

For further information visit www.pvct.com

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Almac Group announce companion diagnostic partnerships with OncoMed

Almac Diagnostics announced recently that it has entered into an agreement with OncoMed Pharmaceuticals, Inc to develop a companion diagnostic test to help predict a patient's likelihood of responding to OncoMed's novel therapeutic which targets R-Spondin 3 (RSPO3). Anti-RSPO3 (OMP-13R10) has demonstrated activity in preclinical models against a variety of major tumour types, including colon, lung and ovarian cancers.

Almac and OncoMed are currently developing a gene expression RSPO3 CLIA assay that can be used to prospectively select patients in the clinical development of anti-RSPO3. OncoMed has filed an Investigational New Drug (IND) application for anti-RSPO3 with the US Food and Drug Administration and a Phase 1a clinical trial is due to commence in summer 2015.

"We are very pleased to announce this partnership with OncoMed who we have worked with for many years. This companion diagnostic development program is a significant milestone in our work together and helps Almac achieve its goal of advancing human health globally," said Professor Paul Harkin, President of Almac's Diagnostic business unit.

For more information visit www.almacgroup.com or E: media@almacgroup.com.

ALMAC
Partnering to Advance Human Health

Devon Oncology Consortium leads the way with ChemoCare V6, the future of Chemotherapy ePrescribing

CIS Oncology is delighted to announce that the Devon Oncology Consortium is upgrading to its web-based ChemoCare V6 solution. The Consortium, comprising of South Devon Healthcare NHS Foundation Trust, Royal Devon and Exeter NHS Foundation Trust and Northern Devon Healthcare NHS Trust has chosen to deploy the latest version of CIS Oncology's ChemoCare product to help work towards a paperless NHS and further enhance patient safety.

ChemoCare is the system of choice for chemotherapy prescribing in over 70 per cent of UK hospitals. ChemoCare V6 provides a multi-device, web-based platform to ensure clinical service flexibility and technology compliance, enabling chemotherapy services to develop in line with the national requirements set out in the commissioning service framework.

A wide range of new features include an enhanced Drug Administration Module (including dual signature functionality) and full support for use on tablets, including touch screen functionality. In addition, ChemoCare V6 allows further integration with clinical portals to encourage joined-up healthcare - including textual laboratory results, real-time treatment summaries and A&E notifications. The solution also incorporates interaction checking and allergy registration via a link to Multilex, provided by First Databank (FDB).

Martyn Blundell of South Devon Healthcare NHS Foundation Trust says: "We have worked with CIS Oncology for many years and enjoy an excellent relationship with them. We are really excited about deploying ChemoCare V6, which we see as a vital step towards a paperless environment – a key driver for our Trust. ChemoCare V6 meets all our



requirements and our prescribers are really looking forward to starting out on the road to a paper free setting."

Other exciting developments within ChemoCare V6 include the new Personalised Medicine Module (PMM) which simplifies the process of ordering & receiving genomics testing for adult and paediatric oncology & haematology, available as stand alone product or integrated into the ChemoCare pathway. PMM has been developed in conjunction with CIS Oncology's partner laboratory, a major NHS Genomics test laboratory. When integrated with ChemoCare, the PMM provides interpreted results at the point of prescribing, thus enabling the seamless review of genomic test results with the prescribing system.

For further information, please contact Nick Walker, Sales Director of CIS Oncology on +44 (0)7717 794340 or nick.walker@cis-healthcare.com

Abstract on Provectus Biopharmaceuticals' PV-10 in colon cancer models published by Society of Surgical Oncology

Provectus Biopharmaceuticals, Inc. have announced that the Society of Surgical Oncology (SSO) has published an abstract describing preliminary research into use of the Company's investigational agent, PV-10, in murine models of colon cancer. A poster based on the published abstract was presented at the SSO's 68th Annual Cancer Symposium.

Titled, "Intralesional Injection of Rose Bengal Induces an Anti-tumor Immune Response and Potent Tumor Regressions in a Murine Model of Colon Cancer," the abstract detailed research by K Pardiwala, G Qiao, J Sundararajan, B Prabhakar, and AV Maker at the University of Illinois at Chicago, Chicago, IL.

Based on their findings, the researchers concluded, "Rose Bengal induced potent cell death in human and murine colon cancer cells in vitro. Intralesional injection in established tumours induced an anti-tumour immune response and significant tumour regressions in vivo. These studies establish that intralesional PV-10 therapy warrants further study as a potential immunotherapeutic agent in colorectal cancer and metastases."

The SSO has made available all the abstracts from the Symposium in an electronic supplement to *Annals of Surgical Oncology*, its house journal. The abstract on PV-10 can be found on page S86 of the book, <http://expo.jspargo.com/exhibitor/web/SSO15Abstracts.pdf>.

For further information visit www.pvct.com



Provectus Biopharmaceuticals announces abstract available on PV-10 for chemoablation of liver cancers

Provectus Biopharmaceuticals, Inc. have announced that the abstract titled, "Phase 1 Study of PV-10 for Chemoablation of Hepatocellular Cancer and Cancer Metastatic to the Liver" was presented at the ESMO 17th World Congress on Gastrointestinal Cancer is now available online at:

http://annonc.oxfordjournals.org/content/26/suppl_4/iv33.1.full?sid=82267ebd-da5c-4a1a-9320-a795571b6085

The abstract concludes "Preliminary efficacy in treatment of liver tumours with PV-10 was observed. Toxicity was transient, and treatment had acceptable tolerability. The study is continuing at three study centers with two expansion cohorts to assess response in hepatocellular carcinoma and other cancers metastatic to the liver."

Eric Wachter, PhD, Chief Technology Officer of Provectus, presented the abstract on July 2, 2015. Full details of the poster contents is now available from Provectus.

For further information visit www.pvct.com



Pioneering Indian hospital treats 10,000th patient with Varian's RapidArc

A three-year-old baby girl with a brain tumour has become the 10,000th patient at Yashoda Hospital in Hyderabad, India to be treated using RapidArc® radiotherapy technology from Varian Medical Systems.

The treatment comes just six years after RapidArc was first introduced clinically at the private hospital, which treats more than 4,000 patients a year from the states of Telangana and Andhra Pradesh in the south-east of India. "The patient responded well to the treatment," said Dr G S Rao, director of the Yashoda group of hospitals.

Yashoda was the first hospital in India to introduce RapidArc treatments and over the past six years it has phased out the use of 'static-field' intensity modulated radiotherapy

(IMRT) treatments and replaced them with RapidArc. In so doing, it has become the first hospital to reach the landmark of 10,000 RapidArc treatments.

Over half the RapidArc treatments carried out at Yashoda over the past six years have involved tumours of the brain, head and neck. Three Varian linear accelerators at the hospital are equipped with RapidArc technology, which was introduced by Varian to speed up treatments and make advanced IMRT approaches more widely available to cancer patients globally.

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Provectus Biopharmaceuticals Signs Letter of Intent with Boehringer Ingelheim to Collaborate in Bringing PV-10 to Market in China

Provectus Biopharmaceuticals, Inc have announced that it has signed a Letter of Intent (the "LOI") with Boehringer Ingelheim (China) Investment Co Ltd. The purpose of the LOI is to lay a foundation for the two parties to collaborate in bringing PV-10, Provectus' novel investigational drug for cancer ("PV-10"), to market in mainland China, Hong Kong and Taiwan. Maxim Group LLC acted as strategic advisor to Provectus in structuring and negotiating the LOI.

Under the terms of the LOI, Boehringer will provide certain commercially reasonable support in the aspects of product registration with the China Food and Drug Administration ("CFDA"), communication preparation, market intelligence and other assistance to Provectus in China to the extent that is within Boehringer's approved business scope and permissible by Chinese laws.

In return, Provectus will grant Boehringer the first priority to be the exclusive collaborator of Provectus in China for PV-10 in the event that PV-10 is successfully registered and approved by the CFDA. At the appropriate time, Provectus and Boehringer will enter into a definitive agreement, including a non-compete provision, for PV-10 to be exclusively developed, distributed and promoted through the collaboration within China, although there can be no assurance that the parties will enter into a definitive agreement.

For further information visit www.pvct.com



Leading Danish cancer center first in Europe to use Varian's Calypso Transponders for liver cancer patients



Aarhus University Hospital in Denmark has treated two liver cancer patients with stereotactic body radiotherapy (SBRT) using Calypso® 'GPS for the Body' transponders from Varian Medical Systems for real-time monitoring during the treatment. A 77-year-old man and a woman, aged 76, both with metastases in the liver, were treated in three sessions over six days, making them the first liver cancer patients in Europe, and only the second and third in the world, to be treated in this way.

"Our experience so far is that tracking tumours with Calypso transponders may help make a significant difference in liver SBRT treatments," says Morten Høyer, professor of clinical oncology at Aarhus. "In the past, we would have to apply a more generous treatment margin around the tumour because of uncertainties regarding the precise tumour position from day to day. Calypso allows us to monitor the treatment real-time and reduce the treatment margin, meaning less healthy tissue is treated."

Per Poulsen, associate professor responsible for motion management tools, adds, "Calypso is a real-time monitoring device that provides additional evidence that the dose is being delivered where it should be, which is even more important in higher dose treatments like radiosurgery. These implanted markers are a very good representation of what is happening real-time."

For further information contact: Neil Madle, T: +44 7786 526068,
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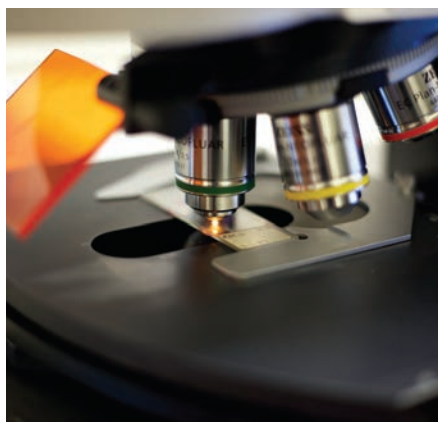
Brain Tumour Research is one of the fastest growing national charities in the UK

Our vision is to find a cure for brain tumours. Our mission is to build a network of experts in sustainable brain tumour research.

We are calling for an experienced research-aware professional to fill a dynamic new role within the charity – **Head of Research**.

Reporting to the Chief Executive, this position will be responsible for developing our unique Research Centre of Excellence strategy; programme governance; grant awards; contracts and research communications. You'll also be tasked with managing our annual scientific workshop.

The suitable candidate will have high-level understanding of research and its translation,



and may come from any one of a variety of backgrounds including research, science or industry. They will be credible with a range of audiences from senior academics to politicians, industry representatives, patients and supporters, and will have excellent communications skills to translate complex scientific medical research into engaging and meaningful content for our supporters and corporate partners.

Salary £35k to £45k depending on experience. Closing date: Friday 25th September. For info on this and other vacancies, visit www.braintumourresearch.org/work-for-us

Siemens syngo solutions ensure ease of compliance for new BTS pulmonary guidelines

Following a recent focus on research of the management of pulmonary nodules for lung cancer screening, the British Thoracic Society (BTS) [1] has developed evidence-based algorithms and recommendations for the investigation of nodules when using imaging techniques. These are expected to lead to a more efficient use of resources and consistent outcomes for lung cancer patients. Siemens Healthcare is also pleased to announce its syngo[®].via MM Oncology software solution has been fully future-proofed to ensure ease of compliance with key areas of the BTS guidelines.

"Lung cancer is the second most common cancer in the UK and accounts for 13% of all new cases, according to Cancer Research UK. Pulmonary nodules are a common case presented within hospitals and a systematic and logical approach is key to their effective investigation and management. Determining the size and growth rate is a vital part of understanding whether a nodule may be cancerous and the impact on the patient," explains Ben Reed, syngo Business Manager GB & Ireland at Siemens Healthcare.

For further information visit www.siemens.co.uk/healthcare.

[1] <https://www.brit-thoracic.org.uk/document-library/clinical-information/pulmonary-nodules/bts-guidelines-for-pulmonary-nodules/>



Provectus Biopharmaceuticals, Sinopharm-China State Institute of Pharmaceutical Industry and Sinopharm A-Think Pharmaceutical Co, Ltd continue search for agreement on PV-10 use in China

Provectus Biopharmaceuticals, Inc have announced that it continues to work with Sinopharm-China State Institute of Pharmaceutical Industry and Sinopharm A-Think Pharmaceutical Co, Ltd to reach an agreement on PV-10 use in China.

Discussions continue with the frame of reference established in the original Memorandum of Understanding (MOU), signed last year and extended since the passing of the original deadline. The original MOU was signed in August 2014, and, since then, the parties have sought to enter into a definitive licensing agreement, subject to additional negotiation, due diligence, and any required regulatory and corporate approvals.

Since the signing of the MOU, management of Provectus and senior personnel at Sinopharm-CSPI and Sinopharm A-THINK have held numerous conference calls, have met face-to-face in both China and the US, and Chinese scientists on staff at Sinopharm have discussed in person PV-10 and its clinical results with the lead investigators at St Luke's University Hospital and Health Network and Moffitt Cancer Center.

Dr Zhidan Jia, Chief Executive Officer of Sinopharm A-THINK, stated, "We continue to work closely with Provectus to arrive at an agreement which defines the terms of our collaboration in bringing PV-10 to the Chinese Market. We hope to come to terms in the near future."

For further information visit www.pvct.com

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New radiotherapy room

Cancer patients at Queen Elizabeth Hospital Birmingham are benefitting from a £1.5 million refurbishment project to dramatically improve their treatment environment.

Treatment room seven in the radiotherapy department has been re-opened after a nine-month refit including the installation of one of the first Elekta Versa HD linear accelerator machines in the region.

The Elekta Versa HD Linac can deliver a dose of radiation in a much shorter time than a conventional radiotherapy machine, increasing the number of patients that can be treated each day.

It also has the most advanced imaging system available which allows tracking of a tumour's motion during treatment by



performing a daily CT scan.

Any movement can then be taken into account as this image guided radiotherapy (IGRT) helps to reduce the amount of radiation given to normal tissues, which in turn reduces some of the long-term side effects for patients.

"This equipment offers the most advanced technology available, designed to improve patient care and treat a broader spectrum of cancers with high-precision beam shaping and tumour targeting abilities," said radiotherapy deputy manager Caroline Williams.

"Around 40 percent of cancer patients have radiotherapy and University Hospitals Birmingham is committed to having state-of-the-art technology for our patients."

Wall art is also a prominent feature of the new treatment room as the radiotherapy team seek to make the environment as comfortable as possible for patients.

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Provectus Biopharmaceuticals' Phase 1 PV-10 data on liver cancer presented at 6th Asia-Pacific Primary Liver Cancer Expert Meeting

Provectus Biopharmaceuticals, Inc have announced that data from its phase 1 study of PV-10 for chemoablation of hepatocellular carcinoma (HCC) and cancer metastatic to the liver was presented on July 3, 2015 at the 6th Asia-Pacific Primary Liver Cancer Expert Meeting in Osaka, Japan.

The presenter was Dr Sanjiv Agarwala, chief of medical oncology and hematology at St Luke's Cancer Center in Bethlehem, Pennsylvania, and professor of medicine at Temple University School of Medicine in Philadelphia, Pennsylvania. He serves as a principal investigator of the phase 1 clinical trial that produced the data presented, and is the lead investigator for the phase 3 clinical trial of PV-10 as an investigational treatment for melanoma which recently began. The poster presentation was titled "Phase 1 Study of PV-10 for Chemoablation of Hepatocellular Cancer and Cancer Metastatic to the Liver."

Based on the data presented, the researchers concluded that preliminary efficacy in treatment of liver tumours with PV-10, a 10% solution of rose Bengal, was observed with acceptable tolerability. The study is continuing at three study centers with two expansion cohorts to further assess safety and response in HCC and other cancers metastatic to the liver.

For further information visit www.pvct.com

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Varian Medical Systems Awarded Major Tender to Equip Network of Hospitals in North-West Spain



Varian Medical Systems has been awarded an eight-year tender to supply advanced radiotherapy equipment and software to a network of hospitals in Galicia, in the north west of Spain. Varian booked the order, worth an estimated 21m (\$23m), in its fiscal third quarter.

Under the terms of the agreement Varian will supply 10 linear accelerators, including three advanced TrueBeam™ systems, to five hospitals in the SERGAS network of hospitals in the Galicia region. Varian will also be installing its full suite of treatment planning software and oncology information management systems across the network.

"This is the largest single order that Varian has been awarded in Spain and we are excited to work closely with the SERGAS group to make the most advanced radiation therapy available to cancer patients in the region," said Jaime Calderon, Varian's Iberia region managing director.

Under this investment project, the five public hospitals – Centro Oncológico de Galicia, Hospital Lucus Augusti de Lugo, Complejo Hospitalario Universitario de Santiago, Complejo Hospitalario Universitario de Vigo and Complejo Hospitalario Universitario de Ourense – will also be connected within Varian's ARIA™ network, enabling greater integration and knowledge-sharing between the five departments. This will be the first time the five centers have been connected in this way.

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Varian Signs Contracts to Equip Two National Proton Therapy Centers in England

Varian Medical Systems UK Ltd announced recently that it had signed contracts with the National Health Service to equip and service two new national NHS proton therapy centers in England with the Varian ProBeam® proton therapy system. Earlier this year, Varian announced that it was selected as the preferred supplier for two three-room NHS centers to be constructed in London and Manchester. Varian expects to book the equipment portion of the order in its fiscal fourth quarter with the remainder of the order to be booked in accordance with the company's policies over the term of the agreements.

The UK government is investing £250m in



building and equipping the two NHS centres at UCLH (University College London Hospitals NHS Foundation Trust) in London and The Christie NHS Foundation Trust in Manchester. Varian is contracted for up to £80 million for equipment supply and service. Equipment installation is expected to take place from August 2017, with patient treatments

expected to begin from 2018.

"Varian is proud to have been contracted to equip and service the national NHS proton therapy centers at UCLH and The Christie," said Dow Wilson, Varian's chief executive officer. "ProBeam was selected after an extremely rigorous and thorough tender process that identified Varian's technology as the most suitable for the country's future proton therapy needs."

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Celebrating 40 years of Macmillan professionals



Forty years ago Macmillan built, equipped and opened the first Macmillan unit, at Christchurch Hospital (now Macmillan Caring Locally). They also funded the first Macmillan nurse.

Ann Nash was one of the first Macmillan professionals [1] and one of the first nurses to take her palliative care skills into the community. She represents how Douglas Macmillan's vision of a 'panel of voluntary nurses, who can be detailed off to attend to necessitous patients in their own homes,' became a reality.

Ann worked for Macmillan for eight years as a nurse consultant and helped to set up the first hospice in the former Soviet Union. She then went on to hold director roles at a number of NHS trusts and Clinical Commissioning Groups.

As cancer treatment and support has changed over the last 40 years, so has the range of Macmillan professionals and the type of support they provide to people throughout the cancer journey – from the moment of diagnosis, through treatment, and increasingly on the way back to health.

To find out more about our services or sign up to our quarterly newsletter, visit macmillan.org.uk/patientsupport

[1] Paul Rossi, Fighting Cancer with More Than Medicine: A History of Macmillan Cancer Support.

Provectus Biopharmaceuticals' Abstract on Liver Cancer for Poster Presentation at 6th Asia-Pacific Primary Liver Cancer Expert Meeting

Provectus Biopharmaceuticals, Inc have announced that the organising committee of the 6th Asia-Pacific Primary Liver Cancer Expert Meeting accepted the Company's abstract "Phase 1 Study of PV-10 for Chemoablation of Hepatocellular Cancer and Cancer Metastatic to the Liver", for a poster presentation.

The presentation happened on July 3, 2015. The presentation was made by Dr Sanjiv Agarwala, chief of medical oncology and hematology at St Luke's Cancer Center in Bethlehem, PA, and professor of medicine at Temple University School of Medicine in Philadelphia. He served as the principal investigator of the Phase I clinical trial that produced the data being presented, as well as the principal investigator in the Phase III clinical trial of PV-10 as a treatment for melanoma which has just begun.

The conference took place July 3-5, 2015, and was held at The Hyatt Regency Osaka, in Osaka, Japan. The Company posted the presentation on its website at www.pvct.com at the time of the presentation. For more information on the conference, please visit <http://www2.convention.co.jp/apple2015/greeting/index.html>

For further information visit www.pvct.com



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