SCS Swiss Chemical Society

Community News

www.scg.ch

www.chemanager-online.com

SWISS CHEMICAL SOCIETY NEWS

The Swiss Young Chemists' Association becomes youngSCS

The repositioning of the youngSCS as an important community of the Swiss Chemical Society comes along with a new & fresh logo.

The youngSCS of the Swiss Chemical Society is a network of young researchers (aged under 35) in all areas of chemistry.

Follow them on Twitter and stay informed about their activities.

scg.ch/youngSCS

Twitter *@SwissYoungChem*

Call for EuChemS Awards

European Chemistry Gold Medal

Every two years, the exceptional achievements of one scientist working in the field of chemistry in Europe are rewarded. The winner will receive a gold medal and the opportunity to give the opening lecture at the next European Chemistry (EuChemS) Congress (ECC).

Submissions for the European Chemistry Gold Medal 2022 are to be made through the online form until December 31, 2020.

euchems.eu/awards/european-chemistry-gold-medal/

EuChemS Lecture Award

Each year, the major achievements of one junior scientist working in chemistry in a country with a EuChemS Member Organisation will be rewarded. The winner will receive a statuette and the opportunity to give a lecture at the next European Chemistry Congress (ECC) or at a conference of a EuChemS Professional Network (PN)

Nominations have to be submitted via the webform until December 31, 2020:

euchems.eu/awards/lecture-award/

EuChemS Award for Service

The EuChemS Award for Service acknowledges outstanding commitment with regard to fostering chemistry and molecular sciences in Europe and the goals of EuChemS. In addition to recognized service to EuChemS, this may include activities in governmental, non-governmental or funding organizations, publicity-related activities, etc. Nominations must demonstrate achievements for improved competitiveness, visibility, coherence or structure of chemistry in Europe.

All EuChemS member organizations, Divisions/Working Parties and individuals are invited to submit nominations for the Award. Self-nominations are not accepted. Decisions on making the Award are taken by the EuChemS Executive Board, normally annually.

Nominations have to be submitted via the webform until December 31, 2020:

euchems.eu/awards/award-for-service/

EuChemS Historical Landmarks Award

Chemistry is an integral part of the Cultural Heritage of Europe. However, while there are many touristic signs marking the very place where important intellectual developments or events happened, only a few chemical sites are identified and publicised. Most of the existing programmes are run by national chemical societies, and therefore often overlook the European, and even the international dimension, of the chemical sciences.

For these reasons, EuChemS decided to set up a Historical Landmarks Programme. It will reinforce the sense of belonging of European chemists and remind them that as far as the history of chemistry goes, people and ideas alike have circulated, been shared and shaped through meetings and communication.

Submissions for the EuChemS Historical Landmarks Award 2020 are to be made through the online form until December 31, 2020.

euchems.eu/awards/euchems-historical-landmarks/

Call for nominations for the International Award Committee for the EuChemS Lecture Award (IACL)

The call for the International Award Committee for the EuChemS Lecture Award (IACL) is now open.

You can submit a nomination via the website of the IACL on www.euchems.eu Please scroll down to the Submission form "Jury Nomination for the International Award Committee for the EuChemS Lecture Award (IACL) 2020".

Source: *https://www.euchems.eu/awards/lecture-award/*

A Warm Welcome to Our New Members!

Period: 19.08.–16.09.2020

Vanessa Abegg, Basel – Jean Behaghel de Bueren, Lausanne – Philipp Bittner, Zürich – Daria Dellenbach, Freienstein – Elena dos Santos, Zürich – Nikolaos Gkogkoglou, Lausanne – Kapila Gunasekera, Zollikofen – Xuecong Li, Zürich – Rafael Lombardi, Basel – Fabio Masero, Zürich – Ulf Meier, Derendingen – Christian Molina, Gossau – Maarten Nachtegaal, Remigen – Giovanni M. Pavan, Manno – Fabio André Peixoto Esteves, Zürich – Dario Poier, Tafers – Mitar Radic, Zürich – Olga Safonova, Baden – Kevin Schiefelbein, Zürich – Frederic Schneider, Olten – Matthias Schneider, Moerschwil – Urs von Gunten, Stäfa – Zhan Zhang, Renens VD.

Obituary Prof. François Diederich (1952–2020)

Dear members of the Swiss Chemical Community,

It is with deep mourning that we have to communicate the passing of one of our most appreciated members, ***Prof. em. François Diederich***, on September 23, 2020 after a battle with cancer. He was held in highest esteem across all areas of chemistry, both in academia and in industry. Our thoughts and hearts reach out to his family and friends.

Prof. Diederich was probably the most recognized leader in modern physical organic chemistry. He was one of the first to move the concepts of physical organic chemistry out of the stage of cataloguing forces and interactions into real world applications that affect and determine nearly every aspect of modern chemistry. This includes not only the understanding of fundamental intermolecular interactions but also the synthesis of new materials with previously unrecognized properties. His work is characterized by innovative methods to scrutinize uncomprehended observations and relate them – in a quantitative fashion – to their molecular origin. Highlights of his many research achievements have been documented in more than 750 peer-reviewed manuscripts in the very best journals in the discipline. He was a scientific leader in numerous areas including carbon allotropes and carbon-rich materials, e. g. fullerenes and acetylenes, synthetic receptors and molecular recognition, as well as medicinal chemistry.

There are few chemists who have been as prominent and active as Prof. Diederich in scientific leadership, interaction and consulting with industry, and the mentoring of young scientists. More than 400 coworkers, master and exchange students, Ph.D. students, postdocs and visiting scientists, have passed through his labs and have been inspired by his imagination and enthusiasm. At least 60 of them have subsequently embarked on successful academic teaching-research careers and many more occupy key positions in chemical and pharmaceutical industry.

Prof. Diederich has served in countless leadership positions, advisory boards, evaluation committees, and society councils. Most prominently, he served as Chairman of the Editorial Board for Angewandte Chemie from 2004–2013. He was a member of the Board of Directors at BASF and acted as a global consultant for Roche/Genentech/Chugai.

Upon joining the Swiss Chemical Society in 1992, Prof. Diederich was an active SCS member for nearly 30 years. In 1996 he was president of the renowned Bürgenstock Conference. From 1995 to 2001 he was a member of the SCS Board of Directors. In June 2019, at the occasion of the International François Diederich Farewell Symposium attended by numerous former co-workers, collaborators, colleagues, and friends from around the world, Helvetica Chimica Acta published a special issue to honor the scientific achievements of Prof. Diederich.

Prof. Diederich was born in Ettelbruck, Luxembourg, on 9 July 1952. He obtained both his diploma and PhD (first synthesis of Kekulene) from the University of Heidelberg in 1977 and 1979, respectively. After postdoctoral studies with Prof. Orville L. Chapman at the University of California, Los Angeles (UCLA) and habilitation at the Max Planck Institute for Medical Research in Heidelberg, he became Professor of Organic and Bioorganic Chemistry at UCLA in 1989. In 1992 he was appointed Professor of Organic Chemistry at ETH Zurich. He retired on July 31, 2017, but remained a research-active professor at the Laboratory of Organic Chemistry at ETHZ.

Amongst other distinctions, Prof. Diederich was awarded the Otto Hahn Medal of the Max Planck Society (1979), the Dreyfus Teacher Scholar Award (1987), the ACS Arthur C. Cope Scholar Award (1992), the Otto Bayer Prize in Chemistry (1993), the Janssen Prize for Creativity in Organic Synthesis (2000), the Havinga Medal (2000), the Humboldt Prize (2005), the Burckhardt Helferich Prize (2005), the August-Wilhelm-von-Hofmann-Denkmünze of the German Chemical Society (2006), the ACS Ronald Breslow Award for Achievements in Biomimetic Chemistry (2007), the Adolf-von-Baeyer-Denkmünze of the German Chemical Society (2011), an honorary doctoral degree from the Technion, Haifa (2012), the Ernst-Hellmut-Vits-Preis (2014) the Prix Paul Metz by the Institut Grand-Ducal, Luxembourg (2014), the Chemistry Europe Fellowship (2015), the EFMC Nauta Award for Pharmacochemistry and for outstanding results of scientific research in the field of Medicinal Chemistry (2016). He was an elected member of the U.S. National Academy of Sciences (2011) and an Honorary Member of the German Chemical Society (GDCh) (2019).

Prof. Diederich will be remembered for his personal warmth and joie de vivre by his former co-workers, colleagues, friends, and the entire chemical community. He will be sorely missed but his legacy will persist.

HONORS, AWARDS, APPOINTMENTS

Fritz-Pregl Medal for Prof. Gérard Hopfgartner, University of Geneva

The Austrian Society of Analytical Chemistry (ASAC) has announced that ***Prof. Gérard Hopfgartner***, University of Geneva, Life Sciences Mass Spectrometry, will receive the 2020 Fritz-Pregl Medal. This highest ASAC award honours scientists who have made outstanding contributions to the analytical sciences.

The award will be presented to Gerard Hopfgartner at the 51st Symposium of High Performance Liquid Chromatography, HPLC, 20–24 June 2021 in Düsseldorf, Germany.

The Award is named after the Austrian chemist Friedrich Michael Raimund Pregl, recipient of the 1923 Nobel Prize in Chemistry. Pregl pioneered the field of Microchemical Methods, which are very closely related to analytical chemistry and to analytical sciences. Fritz Pregl is the doyen of the Austrian analytical chemists.

Source: *unige.ch/sciences/chimie*

Prof. Erick Carreira, ETH Zurich, to be appointed editor-in-chief of JACS

The next editor-in-chief of the Journal of the American Chemical Society (JACS) will be ***Prof. Erick Carreira*** from the Laboratory of Organic Chemistry at ETH Zurich. Erick Carreira will formally assume the JACS editorship at the beginning of January 2021 from Professor Peter Stang, who has led the journal since 2002.

Founded in 1879, JACS is published by the American Chemical Society (ACS) and is one of the flagship journals in chemistry and the most cited journal in the field.

Source: *chab.ethz.ch*

Winners of the SCS Fall Meeting 2020 Exhibition Quiz

The Swiss Chemical Society is proud to announce the winners of the Exhibition Quiz of the SCS Fall Meeting 2020. The prize is endowed with CHF 100 for the winner and 2x CHF 50 for the runner ups. The 2020 prizes go to:

- Dimitri Hürlimann, Winner (University of Basel)
- Joanna Heruska, Runner-up (Eawag)
- Rafael Lombardi, Runner-up (University of Basel)

We like to thank all exhibitors and all other supporters who made it possible for us to organize the annual SCS Fall Meeting and to provide an exiting platform for the Swiss Chemical Community to meet and exchange.
scg.ch/fallmeeting/2020

JOURNAL NEWS

Chemistry Europe – Fellow Class 2018/2019 Special Collection

The Chemistry Europe Fellowships 2018/19 were planned to be bestowed and celebrated at the EuChemS Chemistry Congress 2020 in Lisbon, which had to be postponed to 2022. This special collection showcases contributions from the current class that were published in the Chemistry Europe journals and Angewandte Chemie.

With Katharina Fromm and Karl Gademann, also two Swiss members were honored with the Fellowship.
chemistry-europe.onlinelibrary.wiley.com

Helvetica, Volume 103, Issue 9, September 2020

Reviews

Third-Generation Solar Cells: Toxicity and Risk of Exposure
Elina Buitrago, Anna Maria Novello, Thierry Meyer

Full Papers

Defect Dynamics in $MAPbI_3$ Polycrystalline Films: The Trapping Effect of Grain Boundaries
Alessandro Mattoni, Simone Meloni

Multicomponent Alginate-Derived Hydrogel Microspheres Presenting Hybrid Ionic-Covalent Network and Drug Eluting Properties
Luca Szabó, François Noverraz, Sandrine Gerber-Lemaire

Effect of Structural Defects and Impurities on the Excited State Dynamics of 2D BA_2PbI_4 Perovskite
María C. Gélvez-Rueda, Sicco Peeters, Peng-Cheng Wang, Kevin M. Felter, Ferdinand C. Grozema

Synthesis and Biological Evaluation of Iodinated Fidaxomicin Antibiotics
Andrea Dorst, Inga S. Shchelik, Daniel Schäfle, Peter Sander, Karl Gademann

onlinelibrary.wiley.com/journal/15222675/

INDUSTRIAL NEWS

Source: *www.chemanager-online.com*

Hydrogen – a Market with Potential

August 17, 2020: From generation and liquefaction to solutions for transport and storage and the refueling of hydrogen-powered vehicles – as one of the world's largest hydrogen suppliers, Linde covers all stages of the hydrogen value chain. The increasing importance of gas as a sustainable energy carrier offers further growth potential for the hydrogen business of the globally active group. Andrea Gruß asked David Burns, Vice President and Head of Linde Clean Hydrogen, about market potential and investments in the field of clean hydrogen.

CHEManager: What is the significance of the hydrogen business for Linde to date? What trend do you see for the future?

David Burns (Vice President and Head of Linde Clean Hydrogen): We are proud to say that Linde is a world leader in hydrogen. Today we generate some $2.2 billion revenue globally through hydrogen and have $6.5 billion capital invested. We participate from beginning to end across the entire hydrogen value chain. We operate more than 120 steam methane reformers, around 1,000 kilometers of hydrogen pipelines and we have large liquefaction capacities both in the US and Europe. We even have the world's first commercial high-purity hydrogen storage cavern on the US Gulf coast. It can hold 70 million cubic meters of hydrogen – a volume 27 times bigger than the Great Pyramid of Giza. So, you can quite literally say, hydrogen is huge at Linde.

With hydrogen, especially clean hydrogen, now taking off as a global mega-trend as a result of decarbonization, we expect the gas to play an even bigger role for Linde in the future. It will take a few more years for the market to develop its full potential, but we aim at quadrupling our sales of hydrogen.

For which of your customer industries is "green hydrogen" gaining in importance and why?

D. Burns: Transportation is at the leading edge today when it comes to using clean hydrogen. There is a lot of interest in hydrogen fuel cell vehicles, typically for heavier commercial vehicles such as trucks, buses, and trains. We think this is going to be the area where a lot of clean hydrogen will be required initially. We're well positioned here with the technology we have through our Linde Hydrogen FuelTech business – we have installed nearly 200 hydrogen refueling stations around the world, and this number is growing.

But development work is also going on in other areas, including steel, feedstocks, and refining. Refineries are under increasing pressure to reduce their carbon footprint, and adding green hydrogen to the mix is one way to support this. But ammonia can also be produced sustainably by using hydrogen derived by electrolysis, which – if renewable energy is used – decouples ammonia production from fossil fuels. This is a huge deal as 50 percent of our global food production currently relies on the use of ammonia-based fertilizers to increase crop yields.

And then there are power applications. In power-to-X technologies, hydrogen can be easily used as buffer storage medium to support renewable energy sources. Electricity from wind and solar energy can thus be used very flexibly and can be made available when it is actually needed. A great example of this is Energiepark Mainz, currently the world's largest clean hydrogen plant using PEM electrolysis technology.

Linde itself recently ventured into electrolysis technology. What are your goals as part of the joint venture with ITM Power?

D. Burns: With our strategic investment in ITM Power, a leading electrolyzer producer, and our joint venture company with

them, ITM Linde Electrolysis, we have added electrolysis to our portfolio – which is obviously a major advantage given the direction the hydrogen market is taking and the growth we are anticipating. Both companies are currently pursuing a lot of interesting projects: ITM Power is in the process of developing the world's largest commercial PEM electrolysis plant – at 10 megawatts – at Shell's Wesseling refinery site. ITM Linde Electrolysis' project pipeline consists of close to 60 projects in the EU with a combined capacity of 3.6 gigawatts – of which almost 600 megawatts are in Germany.

Linde has also invested in Hydrospider in Switzerland, a consortium that produces hydrogen via hydropower and electrolysis. This clean hydrogen will power 40 to 50 trucks with hydrogen fuel cells beginning in a few months, and in fact – as we speak – the first ten fuel-cell-powered heavy-duty trucks are on their way to Switzerland.

We are excited about these opportunities and we are confident that these and other projects that are developing will increase the uptake of clean hydrogen.

Are you planning further investments in the context of the national hydrogen strategies that are now being launched in many countries around the world?

D. Burns: Absolutely, we intend to continue growing in all important hydrogen markets. In July, Linde and Beijing Green Hydrogen Technology Development, a subsidiary of China Power International Development, signed a Memorandum of Understanding (MoU) to jointly promote the application and development of clean hydrogen in China. We will collaborate on a variety of clean hydrogen initiatives, including hydrogen technology research and development, and the implementation of clean hydrogen mobility solutions during China's inaugural hosting of the 2022 Winter Olympics.

Another recent MoU with CNOOC Energy Technology & Services, a subsidiary of China National Offshore Oil Corporation's (CNOOC), is aiming in the same direction. Together, we will explore the option to invest in hydrogen production and filling facilities, and further the use of hydrogen in industrial applications, as well as mobility.

Speaking about hydrogen mobility, we particularly look forward to supplying hydrogen to the world's first fuel-cell powered passenger trains in commercial service. After a very successful 18-month trial, Linde is building and operating a 1,600 kg per day hydrogen filling station in Bremervörde, Niedersachsen, which is expected to start service in early 2022. The station will be constructed with a scope on future on-site hydrogen generation using electrolysis. This is a world-leading project and we are excited to play a key role in it.

Blackstone Mooted as Buyer for Takeda's OTC Arm

August 20, 2020: Japanese pharma Takeda is apparently winding down the asset-shedding drive it launched following the $59 billion acquisition of Shire. The company is currently said to be in talks to sell its domestic consumer health (OTC) business to US private equity investor Blackstone. The deal with Blackstone is thought likely to be wrapped up by the end of August. Other interested companies reportedly included private equity investors Bain Capital and CVC Capital Partners. Speculation varies as regards the selling price. While Kyodo News put the sum at 300 billion Japanese yen ($2.3 billion), Nikkei Asian Review said it was more likely to be in the range of billion yen ($2.37 billion). Both numbers are below analysts' earlier estimates of 400 billion yen. Takeda's OTC franchise, which focuses on vitamin tablets and energy drinks, represents only 3% of the company's last reported annual sales of 2.1 trillion yen, a

relatively small business compared with its prescription drug activities. On clinching the Shire deal, the drugmaker had said it planned to divest assets worth $10 billion, focusing on drugs outside its five key focal errors of gastroenterology, oncology, rare disease, neuroscience and plasma-based therapy targeted. Up to now, Takeda has divested activities worth $7.7 billion. Previous deals with Germany's Stada, Switzerland's Acino International, Brazil's Hypera Pharma. Denmark's Orifarm and South Korea's Celltrion focused mainly on the consumer. Separately, Takeda has announced plans to pare down Japanese staff, in part by offering early retirement schemes. The "Future Career Program" will be available to workers in sales and administrative functions while excluding R&D or manufacturing, reports suggest. The drugmaker did not disclose how many jobs it wants to eliminate, but said in announcing the Shire deal in 2018 it was targeting 6–7% of the workforce. As the end of the 2019–2020 fiscal year (Mar. 31), the global group employed 47,495 people, including 6,509 based in Japan. Those employed by Takeda for at least three year can sign up for the plan between Sept. 28 and Oct. 16, and exit the company by Nov. 30. Along with severance pay, they will receive support in finding a new job.

Celleron Takes Roche Cancer Drug

August 18, 2020: UK biopharma Celleron Therapeutics has signed a licensing deal with Roche, gaining exclusive worldwide rights to the Swiss pharma's monoclonal antibody emactuzumab, which is designed to target and deplete macrophages in solid tumors. After a series of early studies, Roche decided in 2018 not to take emactuzumab any further, stating at the time that it was a "business decision" and not related to the therapy's safety or efficacy. Celleron, a spin-out of Oxford University, said emactuzumab has shown "encouraging efficacy" for diffuse tenosynovial giant cell tumor (TGCT), a rare disease characterized by the proliferation of macrophages in the synovial tissue in the joint and tendon sheath. Even though it rarely metastasizes, Celleron said TGCT is locally aggressive and disabling, noting that relapse rates from surgery – the standard therapy – are high. Nick La Thangue, Celleron's CEO, commented: "Celleron's commitment to developing transformative and novel therapies will ultimately allow emactuzumab to be brought to patients suffering from TGCT, which remains a very debilitating disease with limited clinical options." As well as the former Roche asset, Celleron has a global licensing deal with AstraZeneca for dual mechanism histone deacetylase (HDAC) inhibitor CXD101. Celleron is using its CancerNav predictive biomarker platform to identify tumors most likely to respond to the drug. The UK firm has also initiated trials in China with Nuance Biotech to test CXD 101 in patients suffering from peripheral T-cell lymphoma, rare type of blood cancer. A second investigational drug in Celeron's pipeline is CXD 201, a proprietary topoisomerase inhibitor derived from the homocamptothecin family, which the biopharma says exhibits a unique chemical composition and improved pharmacological properties. It is assessing CXD 201 in colorectal cancer patients.

The Impact of Covid-19 on the Pharmaceutical Industry

August 31, 2020: Andrew Badrot, CEO of C2 Pharma and a close observer of pharma industry trends, analyzes the current situation and how this pandemic may kick of changes in the pharma market. Being in the public eye, the pharmaceutical industry has responded extremely well to the coronavirus pandemic. However, the Corona crisis has uncovered some issues that are smoldering under the surface and need to be addressed by the industry and by politics alike. For instance, the pandemic puts pharmaceutical research and development strategies to the test and challenges manufacturing planning and supply chain management. Andrew Badrot, CEO of C2 Pharma, a Luxembourg-based manufacturer, and distributor of active pharmaceutical ingredients (APIs), is a senior pharma expert and a close observer of industry trends. For CHEManager, he analyzes the current situation and how this pandemic may kick of changes in the pharma market.

CHEManager: Mr. Badrot, the Covid-19 pandemic is having an unprecedented worldwide impact. After a half year of living and working under pandemic conditions, what in your opinion are the most important lessons learned so far?

Andrew Badrot: Across the board, we have learned the hard way not to take anything for granted. In the industry, the hardest lesson has been about what true supply chain security means. Over the past few decades, many industries have worked to redesign supply chains to reduce costs, which has led to a greater reliance on global sourcing and networks. But the leveraging of global supply chains has gone so far in the pharma industry that quality and reliability of supply have suffered. After the 2007/2008 Heparin scandal in China, where patients died due to a low-quality material cover up, regulatory agencies have put tighter restrictions on quality levels and sourcing across the industry. While there have been improvements, what these standards have yet to address are the true cost of companies outsourcing necessary materials globally. There was a naive belief that these global networks could not be disrupted, but Covid – and a resulting trade war – have shown us otherwise.

Do we have to halt or even turn back the wheel of globalization?

A. Badrot: Looking at the big picture, just a while ago in 2016, it was still unconceivable to go against the wind of globalization in the mainstream western world. Politicians took the stance that globalization was the inevitable direction of history for our civilization and this narrative was supported by economic theory and large corporation activities.

Carrying forward to pharma, the threat of temporary bans on raw materials exports from China during Covid has sent shivers around the world. This was further amplified by the reality of India's partial and temporary ban on some APIs. With China and India being two of the largest providers of APIs and source materials in today's pharma market, the reality that this industry could be "held hostage" without exports became very real. In today's market, I do not believe any politician would continue arguing that globalization is a "necessary thing" because we now see that the core theory underlying the concept of globalization has been proven wrong. Wealth will not transform dictatorships into democracies. Quite the opposite, in fact. New wealth in dictatorships combined with open communication platforms will threaten democracies at their core and transform some of them into populist authoritarian regimes. And while pharma will continue to be a global industry, business as usual is going to look a little different going forward.

The pandemic has uncovered the limits of the pharma manufacturing model, in particular its reliance on China and India for many starting materials and even some APIs and drug products. Will this lead to a relocation of certain manufacturing back to the US and Europe?

A. Badrot: We believe that the most enduring consequence of Covid-19 in this industry will be a re-evaluation of pharma supply chains with a more regional and failsafe approach. We expect that manufacturers will look to redesign their supply chains with multiple suppliers, and with a much greater reliance on regional manufacturing hubs in the United States, Europe, and Japan.

This will not happen overnight, of course. We expect that it will be a 10-year long journey where the industry looks at how to

re-shore pharmaceutical manufacturing. Initially the challenges will be based on finances and capacity because so much of the existing capacity for chemical assets in the US, Europe and Japan no longer exist. This means that a great deal of money will need to be spent to re-build infrastructure. Another challenge will be the politics of reshoring, as these types of facilities are often misunderstood and unwelcomed by residents. Still, these challenges can be overcome, and from a longevity perspective, they will have a great deal of positive impact if addressed properly. Not only will re-shoring bring dependable jobs back to the west, but it will increase the quality of drugs being manufactured, and ultimately lower costs over time. Close to C2 Pharma's "home" in Luxembourg, we expect to see historical chemical sites like the ones in Frankfurt-Hoechst or Leverkusen in Germany, and in Lyon, France, see a resurgence of activity.

Apart from reshoring manufacturing, what else can Western countries do to reduce the risk of supply shortages and safeguard their healthcare systems in future crises?

A. Badrot: We believe that three decisive actions by Western governments can change the course of affairs in pharmaceutical manufacturing and eliminate the reliance on imports for essential drugs:

First, the creation of preferred access regulations mandating domestic supply of essential API and drugs via a combination of financial grants and import duties. This will be most effective if the supply chains are built to allow drug products to be made from the "cradle to the grave". This means the APIs, solvents, and excipients must all be readily available for sourcing at the quality level needed close – or closer – to home.

Second, strengthening of global quality standards for medicine by allowing the US FDA, European, Japanese, and other regulatory authorities to audit foreign manufacturing facilities without notice. No notifications mean no time to cover-up bad behavior, resulting in a rise in quality compliance.

And finally, transparent labelling at the pharmacy, listing the "country of origin" that the ingredients were sourced from and where the final drug product was formulated and filled in, will allow patients to make more informed decisions.

If these three things are done concurrently, there would be strong incentive to build innovative and flexible local manufacturing assets for essential materials and drug product manufacturing because there would be sustainable profitability in the supply chain. Ultimately, a lack of profitability – which is necessary to keep a business running – is what lead to so much outsourcing of the supply chain in the first place.

While change in the pharma business is continuing, M&A are one element of pharma companies to strengthen their position and create value.

Will this consolidation even intensify due to the Corona crisis?

A. Badrot: Mergers and acquisition activity ebb and flow but is always an underlying factor of growth in this industry. Due to the pandemic, we may see companies that were already in weaker positions go into bankruptcy, and perhaps this could create a bargain-hunting mindset. But this pandemic has also presented new opportunities for companies to enhance strengths and leverage financial interests.

Even if Covid-19 encourages more of a buyer's market, there will be big winners. For instance, Biontech will likely be an acquisition target. Its collaboration with Pfizer has sent its valuation sky-high, tripling in value since January to reach nearly $18 billion, which is immense for any company, but particularly for one with no track record of products or sales.

Undoubtedly, the shifting acceleration of R&D will certainly drive intense M&A activity with big winners and bigger losers.

Speaking of R&D: In the past, pharma companies worked on their R&D projects internally. Today, external innovation is a key success factor, and collaborations with industry peers or research organizations are a daily occurrence. How do you expect the R&D model to evolve in the post-Covid era?

A. Badrot: We do not believe Covid-19 will have a negative impact on pharmaceutical R&D and its reliance on a mix of internal/proprietary and external partners to drive innovation. The overall approach to development and manufacturing have not proven to be a pain point. Rather, we expect that governments will get more active in financing, or even dictating, R&D and manufacturing programs catered to pressing public health interests. This would be a positive development for the local market and the global markets, as innovation happens and inspires true change. We would be hopeful to see programs such as this have an impact on the search for things like novel antibiotics.

Does consolidation in the pharma industry also create a necessity for the CMO industry to consolidate? Which other trends do you see that are changing the CMO industry?

A. Badrot: The CMO industry does not necessarily need to consolidate, but most likely will. Re-shoring will create tremendous opportunity for players who can expand their manufacturing asset base quickly and organically. In parallel, we expect massive private-equity liquidity to be injected in the industry. Private equity does not do "organic growth" particularly well, so the liquidity will drive a flurry of consolidation of small and mid-scale players. This will push the big players to continue accelerating their growth bigger and bigger, which will change the overall landscape of outsourcing. In the coming ten years, we may finally see the emergence of a handful of very large CMOs – that has been a topic of debate in the last 5 years – because of re-shoring.

You established C2 Pharma combining the strengths of Brazil's Centroflora and Switzerland's CMS Pharma. This explains the origin of the company name.

A. Badrot: Yes, C2 Pharma is a name that nods to our past and looks ahead at our future. The company was originally named Centroflora CMS, and when we branched out in 2014, this created a lot of confusion with many customers. Looking to overcome this challenge, we changed the name to C2 Pharma, and subsequently split from Centroflora Brazil, which no longer held any ownership in the company. The C2 refers to the past with the C from CMS Pharma and the C from Centroflora. And it looks ahead at the two C's our team is driven by for the future: competence and confidence.

In 2014, you acquired assets from German drug maker Boehringer Ingelheim along with a multi-year agreement to supply the market with phytochemical APIs. How did this deal expand your technology base and market reach?

A. Badrot: The transaction established C2 Pharma in the API manufacturing business. The portfolio we acquired was mainly a phytochemical portfolio of APIs, meaning APIs extracted from plants. Although much of this portfolio was marred with quality problems, we managed them transparently with our customers and gradually eliminated the problems one by one. We concurrently tech-transferred those APIs to a new manufacturing site. Today, most of our API developments are based on chemical synthesis, but we have also kept our phytochemical heritage in the company and worked to enhance competence in that space. We have established our own source of Digitalis leaves for the manufacturing of Digoxin API, and are engaged in early stage R&D work in the field of hemp and Cannabis and other undisclosed naturally derived raw materials.

How do you evaluate the potential of plant-based APIs in the future?

A. Badrot: Plant-based APIs are considered a niche business in pharma. Phytochemicals require sustainable crops to source from and can often be expensive and complex to extract, which requires the expertise to do so. Even though the industry has trended towards more reliable organic synthesis, phytochemicals will always have a place. Nature is valuable and can surprise us with the resources it offers.

Take the recent pharma industry interest in cannabis and CBD. Globally, interest is growing in these products, and the plant-based approach has shown to have features that may not be reproducible in a chemical facility. This means that phytochemical expertise, while niche, remains valuable and necessary to innovation.

A key sponsor of the "Partnerships for a Better World" program, C2 Pharma is committed to build a sustainable pharma supply chain. What are the goals of this program and does it have in its tool box to reach them?

A. Badrot: The "Partnership for a Better World" program started in 2003 with Centroflora to support sustainable, traceable, and ethical harvesting of medicinal plants used in the manufacturing of phytochemical APIs for pharmaceutical and nutraceutical products. The program was designed to positively impact all aspects of the supply chain for harvests of various native plants from the Amazon forest and other Brazilian biomes, such as Pilocarpine.

The program's focus on longevity recognizes the critical importance harvesting has on biodiversity as well as the fact that it is the only source of income for more than one thousand families in Brazil. Five core principles of the program actively infuse and promote ethical trade and sustainability concepts into the harvesting process, including:

- Fair Trade principles to improve working conditions for families of pickers by increasing their income by 5 to 10 times.
- Socio-environmental development of local communities from Brazil's most disadvantaged regions, whose livelihoods depend on the gathering of native plants. Rather than depending on single- plant harvests, multiple harvest cycles are created for different plants to ensure a year-round income stream for families of pickers.
- Sustainable harvesting techniques to help end illegal picking and reduce the risk of extinction for native plants and preserve biodiversity.
- Increasing the quality of phytochemical markers in the harvests by implementing Good Harvesting Principles.
- Enhancing traceability of harvests to build in long-term quality and sustainability of ingredients.

At C2 Pharma, we carry forward this work by providing firm purchase commitments and full pre-payments of harvests a year in advance. We pay 30% higher prices for the harvests than equivalent farmed crops and ultimately accept lower product margins for the API with the knowledge that these crops have extended lifespans and value.

Nestlé Boosts Allergy Offering with Aimmune

September 2, 2020: Nestlé Health Science has agreed to buy Aimmune Therapeutics, a US biopharma and developer of food allergy treatments. The Swiss multinational food and beverage conglomerate already owns about 25.6% of the company through investments worth $473 million made between November 2016 and January 2020. The acquisition, which values Aimmune at about $2.6 billion, is set to close in this year's fourth quarter. It is expected to be accretive to Nestlé's organic growth in 2021 and increase cash earnings by 2023. Aimmune's Palforzia is the first and only treatment approved by the US Food and Drug Administration (FDA) that helps reduce the frequency and severity of allergic reaction to peanuts, including anaphylaxis, in children aged 4 to 17 years. "This transaction brings together Nestlé's nutritional science leadership with one of the most innovative companies in food allergy treatment," said Nestlé Health Science CEO Greg Behar. "Together we will be able to offer a wide range of solutions that can transform the lives of people suffering from food allergies around the world." According to Nestlé, about 240 million people worldwide suffer from food allergies and reactions to peanuts are the most common. Jean-Philippe Bertschy, an analyst with Swiss banking and investment management company Vontobel, described the Aimmune deal as "another milestone" for Nestlé after it purchased Canadian supplements manufacturer Atrium Innovations in December 2017 for $2.3 billion. In September last year, Nestlé also took a "significant" minority stake in Before Brands, a health and wellness company focused on developing nutritional products that protect against allergenic development in babies. Nestlé set up its health science arm on Jan. 1, 2011 to "pioneer a new market between food and pharma," aiming to develop science-based personalized nutrition solutions to chronic medical conditions. At the same time as establishing Nestlé Health Science, the group created the Nestlé Institute of Health Sciences, headquartered at the Swiss Federal Institute of Technology in Lausanne, to spearhead biomedical research into health and disease as influenced by genetics, metabolism and environment.

Trends in Highly Potent API Manufacturing: Safe Handling, Containment and Production

September 10, 2020: For biopharma leaders it is more critical than ever to secure the capabilities to contain, handle, develop and manufacture highly potent APIs.

Several convergent trends increasingly define the small molecule landscape. A growing proportion of the drug development pipeline is made up of more complex, highly potent APIs (HPAPI). These molecules are commonly associated with innovative cancer treatments, such as antibody-drug conjugates (ADC), but they also have shown effectiveness in treating autoimmune diseases, diabetes and a range of other indications. HPAPI molecules now make up over 30% of the drug development pipeline. Alongside the growth in HPAPI molecules, smaller companies are increasingly driving the development of innovative molecules and products. These companies are submitting higher numbers of drug products for regulatory approval as specialty medicines, which often requires meeting accelerated timelines to market. Additionally, when these products are designed to treat rare diseases with small patient populations, they face uncertain demand if or when they reach the market. This uncertainty underscores the importance of flexible manufacturing capacity that can help avoid regulatory changes (e.g., due to change of scale) in response to an increase or decrease in demand.

For biopharma leaders, these trends mean it is more critical than ever to secure the capabilities to contain, handle, develop and manufacture increasingly complex molecules, including HPAPI. For many companies, particularly small, emerging and even virtual biopharma companies which lack extensive in-house manufacturing capabilities, the path forward typically includes working with an external partner such as a contract development & manufacturing organization (CDMO). In these cases, it is essential to select a partner with the appropriate experience and capabilities to help advance and develop innovative, life-saving HPAPI products. The optimal partner will also anticipate clinical fluctuations throughout the entire clinical development timeline, make proactive suggestions on process improvements and manufacturing concepts and thereby minimize time to the next clinical milestone and to the market.

HPAPI Molecules: Efficacious at Extremely Low Concentrations

HPAPI molecules represent a new way to use small molecules to deliver innovative patient therapies, often incorporating more precise delivery mechanisms. The shift toward the use of HPAPI has led to the emergence of a pipeline of more effective medicines, with potentially lower dose requirements and fewer side effects. These molecules are efficacious at extremely low concentrations, in doses as low as 1 mg/d. On the downside, their high potency means they can cause harm if handled improperly; they frequently have occupational exposure limits (OELs) at or below 10 µg/m3 of air as an 8-hour time-weighted average.

Interest in highly potent drugs is largely driven by oncology research and more targeted therapies across a number of indications. Currently, over 1,000 highly potent small molecules are in development, with approximately 30 % targeting oncology, 20 % for antidiabetics, 20 % for autoimmune diseases and the remainder for other indications.

Due to their wide range of potential uses and benefits for patients, the growth in the HPAPI market is outpacing the overall API market by almost two-to-one. The segment is growing at about 10 % compound annual growth rate (CAGR), compared to 6 % for the overall small molecule market. The market value from existing and new HPAPI product launches is expected to double between 2018 and 2025, from around $18 billion to $35 billion.

Safety Is a Top Priority in HPAPI Manufacturing

This trend towards greater use of HPAPI molecules presents significant potential benefits for patients, but it also comes with handling, containment and manufacturing challenges for innovators and their development partners, since these molecules can be dangerous if mishandled. Safe HPAPI handling can be ensured by focusing on facility design, protection strategy & procedures and personal protective equipment.

Sophisticated facility design elements include several tools to ensure safe handling of potent materials. Units are available for primary and secondary containment of the entire process including solid charging containment, sampling and unloading, with ranges from 50 g to 200 kg of starting material. For product sampling, liner ports can help lock in and lock out glass sampling bottles. To aid in the product unloading process, manufacturers can use endless liner systems and customized flex isolators (in some cases more rigid, hard-walled isolators may be preferred).

Well-designed protection strategies include nuanced and detailed processes for how workers can use and clean HPAPI manufacturing assets. For example, cleaning procedures should include clear acceptance criteria for opening equipment after precleaning. And the safest equipment startup sequences are embedded into the risk assessment process, with leak test and rinse prior to production and defined criteria allowing for production release.

Personal protective equipment is of course extremely important to keep workers safe. Reliable equipment including coveralls, hoods, gloves, chemical suits, supplied air and other implements should be available in ample supply for anyone working with highly potent materials. However, the use of PPE should be the last resort and not the main method of protection for routine operations. Adequate organizational measures and procedures can often accommodate PPE-free operations, keeping the PPE only for non-routine operations.

An important complement to technical containment equipment is a well-trained workforce with a strong commitment to a culture of safety. While a culture cannot be bought and installed like a piece of manufacturing equipment, leaders can take steps to encourage the right mindset among workers. When it comes to building out a training program, facility operators must stress that there are no compromises possible in compliance. And fielding idea submissions from employees and managers for how to improve safety further can increase motivation and dedication among staff members.

The Trend toward HPAPI Outsourcing

In response to the growing need for sophisticated HPAPI manufacturing, some CDMOs are building flexible, integrated capabilities dedicated to HPAPI development from preclinical to commercial production. These programs place an emphasis on safe procedures from equipment startup to handling, cleaning and decontamination, and they come as outsourcing of HPAPI production is increasing at a rapid pace. Demand for highly potent small molecule API manufacturing and development services is keeping pace with the overall HPAPI market value, and is expected to exceed $7.5 billion by 2023, more than doubling the $3.5 billion market size in 2015.

One example is Lonza's Center of Excellence for HPAPI Manufacturing and Development at our Visp (CH) site, which features a comprehensive platform including a highly skilled team, extensive evaluation and training procedures and state-of-the-art facilities. Lonza has capabilities in place to safely handle HPAPI to exposure levels up to 100 ng/m3 across all manufacturing scales (up to 10 m3), allowing for production to scale up and down flexibility as needed. For more potent compounds such as ADC payloads (containment down to 1 ng/m3), Lonza has separate and segregated capabilities at the Visp site, where quantities from grams to multiple kilograms of compound can be safely handled.

What it Means for Biopharma Innovators

For biopharma innovators, working with a single partner across the development pipeline can shorten timelines and reduce risk. CDMO partners can access in-house experts across a range of drug substance and drug product challenges, engage in technology transfer activities and exchange information, ideas and best practices across the drug development cycle. A study from Tufts Center for the Study of Drug Development has found that a single-source outsourcing model can shorten the drug development cycle by 14 weeks and lead to financial gains of up to $45 million. For HPAPI compounds, drug product capabilities will include parenteral formulations/sterile fill-finish services and oral delivery options such as liquid-filled hard capsule technology. Contained particle engineering can also be required for safe and effective jet milling or spray dry processing. Outsourcing development to a qualified CDMO can help meet accelerated production timelines and help deliver life-saving therapies more quickly to patients who need them.

Conclusion

As HPAPI molecules continue to play a growing role in new pharmaceutical products, biopharma companies will need access to flexible, sophisticated manufacturing assets to bring their innovative products to market and to patients. Given the high potency of these molecules, safety and containment are key components of effective HPAPI manufacturing.

Working with a qualified CDMO can help biopharma companies advance HPAPI compounds and products at high speed and low risk. When evaluating external partners, biopharma innovators should base their choice on the CDMO's experience in the HPAPI space and the containment, handling and manufacturing assets the partner brings to bear.

AveXis now Novartis Gene Therapies

September 16, 2020: Pharmaceuticals heavyweight Novartis is changing the name of its previously indirect subsidiary AveXis to Novartis Gene Therapies. The Swiss drugmaker said the change signifies the growing importance of gene therapy to

building a leading, focused medicines company with advanced therapy platforms. In future, AveXis and Novartis brands will operate under one corporate umbrella.

"With the creation of Novartis Gene Therapies, we will continue to advance our gene therapy pipeline for rare genetic diseases, to accelerate the delivery of transformative innovation in areas of high unmet need and to reimagine medicine for patients all around the world," said Novartis group CEO Vas Narasimhan. In addition to further developing and marketing Zolgensma to treat spinal muscular atrophy (SMA), the new genetics unit will also provide manufacturing support for gene therapy work conducted by other Novartis units. The spinal disease is the leading genetic cause of infant death. Zolgensma is approved in the US, Japan, Europe and Brazil. The new Novartis Gene Therapies is currently pursuing registration for the drug in numerous other countries. Regulatory decisions are expected in Switzerland, Canada, Australia, Argentina and South Korea by late 2020 or early 2021. As the Swiss group scales up to deliver Zolgensma globally, it is also seeking to expand its reach via a "robust" pipeline of AAV-based gene therapies for rare genetic diseases including investigational treatments for Rett syndrome, a genetic form of amyotrophic lateral sclerosis (ALS) and Friedreich's ataxia. Novartis acquired AveXis for $8.7 billion in April 2018, and the drug was approved by the US Food and Drug Administration (FDA) a month later. Shortly afterward, the drugmaker acknowledged belatedly it had failed to report that some of the data in the FDA filing was inaccurate as it wanted to investigate internally first. The agency did not levy a penalty.

The Importance of Innovation for Future Success

September 16, 2020: Innovative strength has been a cornerstone of Bachem's business success since the founding nearly 50 years ago. Dr. Günther Loidl, Chief Technology Officer for Bachem Holding, talks about a new innovation management system that will further heighten the importance of innovation in the future.

What does "innovation management" mean to you?

Günther Loidl (Chief Technology Officer): Bachem Innovation Management is part of a comprehensive approach spanning every business unit. In accordance with the corporate strategy, we are generating the necessary space and implementing lean structures and processes to improve the flow of new ideas within the organization. The most important basis for innovation is a corporate culture which is positive and open to change.

How is Bachem strengthening its innovation culture? What elements need to be in place?

G. Loidl: Each and every Bachem employee is allowed and encouraged to be innovative. We want to get our employees excited about innovation and raise awareness of the importance of innovation for our future success. We will open up the space where ideas can be generated and provide the necessary resources to support their implementation. We recognize the best suggestions, implement improvements, and celebrate important advances together. We clearly communicate our goals and empower our employees through coaching and mentoring along with focused education and training.

Do you innovate strategically, following a roadmap? How does that work?

G. Loidl: Our innovation management system is built on three pillars. A strategic team continually collects ideas for improvements in our production technology. The key areas here are chemical know-how, automation of our production processes, and developing and improving machinery and equipment. At the same time, we continually analyze our business processes and implement digital solutions in a focused way along the entire value chain. The third element consists of a broad initiative to promote continual improvements in all business units and across all hierarchy levels.

Where do you find innovation triggers? Do you work on an interdisciplinary basis?

G. Loidl: A number of very valuable improvements in recent years have been based on ideas from our employees. Our technology scouting program also conducts strategic searches outside the organization. We often get key ideas from our customers. The legal and regulatory environment is also an important driver. And finally, we collaborate with academic groups on breakthrough solutions such as using artificial intelligence to identify optimization potential in production processes.

Can you give us some examples of recent strategically important Bachem innovations?

G. Loidl: Since many of our active ingredients are highly biologically active, developing sealed trays for product containment during freeze-drying was a very important win for protecting our employees' health. We are currently developing a fully automated peptide synthesis system in-house. This will enable us to expand production capacity while also cutting costs. We protect intellectual property such as production processes with a strong and properly focused patent portfolio.

How do you see things developing around the world as a whole? Who will be tomorrow's innovation leaders?

G. Loidl: The successful businesses in the future will be those that spot global trends early and develop effective and efficient solutions across disciplines. Digitalization and artificial intelligence are opening up new opportunities in data collection and analysis, which will facilitate better decision-making and enhance entrepreneurial agility. At the same time, the human factor is becoming an ever more important focus of our thinking and interaction with our customers and partners. In our industry in particular, the goal of all innovation is to better serve the customer.

BioNTech Acquiring Novartis' Marburg Site

September 22, 2020: German biotech BioNTech has signed a share purchase agreement with Novartis to acquire the Swiss drugmaker's GMP-certified manufacturing facility in Marburg, Germany. The deal will expand the Mainz-based company's Covid-19 vaccine production capability by up to 750 million doses per year, or over 60 million doses per month, when fully operational. BioNTech said the Marburg facility will become one of the largest mRNA manufacturing sites in Europe and the third site in its own manufacturing network in Germany expected to produce BNT162 for global supply. The transaction with Novartis is due to close in the upcoming fourth quarter. BioNTech hopes to be able to produce up to 250 million doses of the vaccine candidate in the first half of 2021, leveraging the site's established team, along with its well-established drug substance and drug product manufacturing capabilities. Novartis' Marburg plant is a state-of-the-art, multi-platform GMP certified manufacturing facility that currently employs around 300 staff, all of which will transfer to the new owner. The fully equipped infrastructure will facilitate production of recombinant proteins as well as cell and gene therapies, cell culture labs and viral vector production capabilities, with further potential for long-term growth and expansion, BioNTech said. Over the past five years, the Basel-based drugmaker has significantly invested in the Marburg site located in a life science industry park that is home to more than 10 companies with 6,000 employees. As part of the erstwhile Behringwerke, the location has a long history of vaccine development. BioNTech said it expects to operate the former Novartis plant as one of the

largest mRNA manufacturing sites in Europe alongside two of its existing GMP facilities currently producing the Covid-19 vaccine candidates for clinical trials and in addition to at least four Pfizer production sites in the US ta and Europe. The Marburg facility is expected to start production of mRNA and the LNP formulation for the Covid vaccine in the first half of 2021, pending regulatory authorization or approval of the candidate.

Germany's BioNTech has signed a share purchase agreement with Novartis to buy the Swiss drugmaker's GMP-certified manufacturing facility in Marburg, Germany. The deal will expand the company's Covid-19 vaccine production capability by up to 750 million doses per year, or over 60 million doses per month, when fully operational.

In addition to the coronavirus vaccine, BioNTech plans to manufacture additional therapeutic and vaccine candidates at Marburg, including other mRNA vaccines and antibody and cell and gene therapy product candidates. This will support the development of its diversified cancer and infectious disease product pipeline. The plant is also envisioned to contribute to production of the Covid vaccine for global supply, including China, where BioNtech is partnered with Fosun Pharma. Sierk Poetting, chief financial officer and chief operating officer at BioNTech, said the facility's acquisition reflects the company's commitment to significantly expanding its manufacturing capacity in order to supply a potential vaccine worldwide upon authorization or approval. BioNTech's BNT162 program includes five mRNA vaccine candidates currently in clinical trials in the US, Europe, South America and China. BioNTech and Pfizer are evaluating the lead candidate, BNT162b2, in a global Phase 3 trial.

Clariant Builds China Catalyst Plant

September 22, 2020: Clariant has announced it will build a new catalyst plant in China, its third in the country, as the Swiss group strives to strengthen its existing network. Located at the Dushan Port Economic Development Zone in Jiaxing, Zhejiang province, the facility will produce Clariant's Catofin catalyst for propane dehydrogenation (PDH), which is used to produce olefins such as propylene or isobutene. Construction is scheduled to start this quarter with full capacity planned by 2022. "As we have defined the right portfolio for Clariant's focused growth strategy, it is now vital that we invest in these core high-value specialty businesses, such as catalysts, to put them in the strongest possible market positions. China continues to be a growth market with attractive prospects for Clariant," said Clariant's chief operating officer Hans Bohnen. The plant will also be Clariant Catalysts' most digitized facility to date, incorporating sophisticated automation systems throughout the production process. Clariant already has a joint venture facility with the North Huajin Group in Panjin as well as a fully-owned Clariant facility in Jinshan, Shanghai. According to Clariant, China is the world's leading producer of on-purpose propylene, accounting for about 50% of total global capacity, with output expected to continue rising by 8% annually. As such, the first phase of the new plant will focus on meeting China's PDH requirements. Clariant added that it may expand manufacturing capabilities at the site in the future to offer further catalyst technologies that are relevant to China's chemical industry. Clariant will build a new catalyst plant in China, its third in the country, as the Swiss group strives to strengthen its existing network. Located at the Dushan Port Economic Development Zone, the facility will produce Clariant's Catofin catalyst with full capacity due by 2022.

Partnership with Tianjin University

In separate news, Clariant Catalysts has formed a long-term, strategic partnership with Tianjin University (TJU), establishing the Clariant-TJU Academy to focus on the research and development of new catalysts. "We are convinced that the results of this important research initiative will benefit our customers globally, but particularly in the local Chinese market," said Marvin Estenfelder, head of R&D at Clariant Catalysts. TJU president Donghan Jin said that as well as offering students the opportunity to gain industrial experience with Clariant's scientists and enhancing the knowledge of its researchers and faculties, the cooperation also provides a way for the university to commercialize the joint research results using Clariant's infrastructure. Clariant has initially committed for four-years but added that it "looks forward to many positive outcomes and the possibility of a future extension in duration and scope".

Oqema Sets up new Distribution Partnership with Solvay

September 23, 2020: Global chemical company Solvay and specialty chemicals distributor Oqema have entered into a distribution partnership for phenol and phenol derivatives. The partnership covers Solvay's products hydroquinone, methylhydroquinone, TBC and PTZ for the monomers market, alongside other phenol derivatives for the agrochemicals and pharma markets. Oqema will be distributing these products to the monomers, pharma and agrochemicals markets in Benelux, the United Kingdom, Ireland, France, Italy, Germany, Switzerland, Poland, Czech Republic, Slovakia, Slovenia, and the Baltic countries. Christophe Gas, Vice President and EMEA Region General Manager of Solvay's business unit Aroma Performance, said: "Having demonstrated a strong relationship across different businesses, Oqema are well placed to penetrate the monomers and polymers market alongside the agrochemicals, pharma and electronics markets by acting as a real extension to our sales arm." James Berwick, Oqema's European Specialty Group Director, added: "As a leading distributor of specialty products across an expanding European geography of 21 countries, we are strategically expanding our intermediate portfolio to widen our offering to the significant production base of active ingredients across Europe. Solvay's broad range of phenolic intermediates becomes the strong basis of our portfolio, complementing our existing range, and, at the same time, strengthens our European position in the pharma, agrochemicals and life science market." "This partnership formalizes the concrete relationship we have had with Solvay for the last decade and gives our customers the security in supply and product quality that's needed in today's ever more challenging distribution market," said Steven Schellhorn, Head of Sales at Oqema UK & Ireland.

Sanofi/GSK and Moderna Seal Vaccine Supply in Canada

24.09.2020 – Both the Sanofi/GlaxoSmithKline partnership and US vaccine producer Moderna this week announced new advance purchase agreements with Canada for their Covid-19 vaccine candidates. The French-British pharma duo said it had agreed to supply 72 million doses, starting in 2021. The two companies began Phase 1/2 studies for their candidate on Sept. 3 and expect first results in early December 2020 to support initiation of a Phase 3 study before the end of the year. If data is sufficient, they plan to apply for regulatory approval in the 2021 first half. "To address a global health crisis of this magnitude, it takes partnership," said Thomas Triomphe, global head of Sanofi Pasteur. "We are grateful to Canada for its collaboration and to GSK for partnering with us to develop a safe and effective vaccine," he added. Moderna said the Canadian government has increased its confirmed order commitment to 20 million doses of its Covid-19 candidate, mRNA-1273, and additionally has an option to takd 36 million additional doses. The company said also that its Phase 3 study has enrolled more than 75% of its targeted participants. The US biotech, which will source the Canadian supply from its European capacity with manufacturing partners Lonza in Switzerland and ROVI in Spain (fill-finish), said it remains on track to be able to deliver up to 56M doses beginning in 2021.