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SWISS CHEMICAL SOCIETY NEWS

Chemical Landmark 2021 honors Bruker in Fällanden and ETH Zurich



About 50 years ago Bruker and ETH Zurich joined forces to revolutionize chemical analysis in the materials and life sciences. For their achievements in the development of nuclear magnetic resonance spectroscopy, their sites are now honored with the Chemical Landmark 2021.

The Bruker Building at Industriestrasse 26 in Fällanden and the ETH Zurich site at Universitätsstrasse 22 in Zurich have recently been added to the Swiss Chemical Landmarks' map of the Swiss Academy. At the awarded sites, the joint team from Bruker and ETH Zurich contributed significantly to the development of nuclear magnetic resonance spectroscopy (NMR spectroscopy).

Nowadays, NMR spectroscopy is irreplaceable in chemistry, materials science, biology, and medicine as analytical method. It allows the analysis and studies of three-dimensional structures and reactions of atoms, molecules, liquids, and solids. The technique is based on using the spin angular momentum of atomic nuclei as sensitive probes that can detect the smallest changes in the local magnetic field. These changes are expressed in nuclear spin resonances, from which the chemical properties and structure of the analyzed molecules can be deduced.

In 1967, Spectrospin (now Bruker) introduced the first fully transistor-based NMR spectrometer. With the HFX-90, completely new experiments could be performed.

Nobel Prizes for Switzerland

Bruker entered the development of NMR spectroscopes in 1965 with the company Spectrospin. The company then presented the first spectroscope whose electronics were made entirely of transistors, just like today's computers.

In the mid-1970s, the company began a collaboration with Richard Ernst of ETH Zurich. The chemist and the industrial company brought the so-called Fourier transform spectrometer to the market. Compared to standard NMR spectrometers, this method offered better resolution and shorter measurement times and was a milestone in chemical analysis. Ernst was awarded the Nobel Prize in Chemistry in 1991 for his research on high-resolution NMR methods.

With Kurth Wüthrich, a second ETH chemist joined the team. He achieved another milestone: thanks to 2D NMR spectroscopy, it was now possible to not only determine the chemical composition of substances, but also to measure the distances between the individual atoms. This was a major step forward in analyzing the structure of complex molecules. Wüthrich also received the Nobel Prize in Chemistry in 2002 for his work on the structural determination of proteins.

Cutting-edge research made in the container

In addition to the various technical milestones, the Chemical Landmark jury emphasized the successful long-standing cooperation between industry and academia. The collaboration with Bruker enabled the two scientists to transfer findings from basic research to industry.

For a certain time, Ernst and Wüthrich worked next door to each other in office containers located on the roof of the Laboratory for Physical Chemistry at Universitätsstrasse in Zurich. There and at Bruker's headquarters in Fällanden, are now commemorative plaques to honor their pioneering contributions to NMR technology. The plaques were unveiled on July 1, 2022 at a joint ceremony.

Website: chem.scnat.ch

Invitation to the youngSCS General Assembly 2022



The youngSCS kindly invites you to attend the General Assembly 2022, taking place on Thursday September 8, 13.30h at the Irchel Campus (University of Zurich) within the SCS Fall Meeting 2022. The board members will report on their activities 2021/22 and make an outlook on the planned initiatives and events 2022/23. Moreover, the assembly will

also discharge the old board and elect the board for the coming year.

We encourage all young chemists to attend the General Assembly, as we will discuss how to extend our visibility and brainstorm on activities that could potentially be interesting for our community.

Take the opportunity to encourage anyone who has an interesting idea or would like to take part of the youngSCS organizing team. Contact us on youngscs@scg.ch

We are looking forward to meeting all of you!

Sincerely,

Lluc Farrera Soler

President of the youngSCS

youngSCS General Assembly 2022 September 8, 2022, 13.30–14.30h

Agenda GA 2022

1. Welcome
2. What is youngSCS (Organization and goals)
3. Review of activities 2021/22
4. Finances
5. Elections
6. Planned activities for 2022/23
7. Varia

Website of the youngSCS: scg.ch/youngSCS

New multi-year plan 2025-2028 for the Swiss Academy of Arts and Sciences



With its six units, nine research infrastructures, around 100 commissions and 157 member societies, the Swiss Academies (A+) has developed a new multi-year plan for the period 2025–2028. The variety of objects and topics to be worked on, as well as the broad spectrum of disciplines, methods, knowledge goals and bodies of knowl-

edge, could be bundled in six focal points. With its interdisciplinary and transdisciplinary approach, the academy network can comprehensively address urgent problems and identify viable, robust solutions. The pdf file of the multi-year plan is available on the website of A+.

The unique selling points of the academy network were consistently elaborated: the link between theory and practice; people from science, business and politics who are involved in the militia system; movable hinges between different disciplines as well as between basic research and applied and oriented research. More information: akademien-schweiz.ch

Stick to Science: Open letter to EC President Ursula von der Leyen



The co-initiators of the Stick to Science initiative have sent an open letter to the President of the European Commission, Ursula von der Leyen, in late June, asking her to intervene urgently in the critical issue for science created by the delay of the association of the United Kingdom and Switzerland to Horizon Europe.

Please find the letter via the following link: stick-to-science.eu/open-letter-to-ec-president-ursula-von-der-leyen

The Stick to Science initiative has been set up by the European research community calling for open and barrier-free collaboration among Europe's research and innovation (R&I) actors, who all share the same values. The initiative is an active response to the delayed progression of association agreements with Switzerland and the United Kingdom (UK), which are being held up by political barriers that have nothing to do with science.

Since February, the Stick to Science campaign has brought together the voice of more than 5600 major research funding/performing bodies, umbrella organisations, individual researchers, entrepreneurs and innovators, calling for an open R&I landscape both at European and at international level, without any political barriers. We would like to thank you once again for your active support.

More information: stick-to-science.eu

IUPAC call for nominations for the 'Distinguished Women in Chemistry or Chemical Engineering' Award 2023



The International Union of Pure and Applied Chemistry (IUPAC) is pleased to announce the call for nominations for the IUPAC 2023 Distinguished Women in Chemistry or Chemical Engineering Awards. The purpose of the awards program, initiated as part of the 2011 International Year of Chem-

istry celebrations, is to acknowledge and promote the work of women in chemistry/chemical engineering worldwide. In 2011, 23 women were honored during a ceremony held at the IUPAC Congress in San Juan, Puerto Rico, on 2 August 2011. At each of the subsequent IUPAC Congresses, 12 women received this recognition; in Istanbul, Turkey in 2013, in Busan, Korea in 2015, in Sao Paulo, Brazil in 2017, in Paris, France in 2019, and virtually (in Montréal) in 2021. A similar award ceremony will take place during the 2023 IUPAC Congress in August 2023 in The Hague, The Netherlands.

Awardees will be selected based on excellence in basic or applied research, distinguished accomplishments in teaching or education, or demonstrated leadership or managerial excellence in the chemical sciences. The Awards Committee is particularly interested in nominees with a history of leadership and/or community service during their careers.

Awardees will be honored at the 2023 IUPAC World Chemistry Congress in The Hague, The Netherlands.

Nominations should be received by 1 November 2022.

More Information: iupac.org

A Warm Welcome to Our New Members!



Period: 01.06.–07.07.2022

Khadijetou Ahmed Ethmane, Geneva - Mercede Azizbaig Mohajer, Zurich - Meropi Bagka, Geneva - Federica Battistin, Zurich - Lydia Bisbal Lopez, Zurich - Dominique Borgeaud, Zurich - Lukas Bregy, Salgesch - Julien Chong, Ville-la-Grand (FR) - Gozde Demirci, Fribourg - Yong Ding, Zurich - Arndt Finkelmann, Lörrach (DE) - Felix Fleckenstein, Zurich - Marco Franco, Dübendorf - Christian Elias Gerber, Burgdorf - Dario Gomez Vazquez, Zurich - Man Guo, Windisch - Rahel Heeb, Zurich - Chuhui Huang, North Melbourne (AU) - Mariko Inoue, Adliswil - Parth Kadakia, Fribourg - Aramis Keller, Allschwil - Frederic Kölblin, Zurich - Pavel Moreno Garcia, Bern - Maximilian Mues, Basel - Tobias Nørby Hansen, Rødovre (DK) - Sven Nösberger, Bern - Chiara Pischetola, Villigen - Maxime Poncet, Le Grand-Saconnex - Fatlinda Rahmani, Fribourg - Jiajun Ren, Zurich - Jérémie Reusser, Bern - Valentin Rougé, Dübendorf - Estelle Saner, Birsfelden - Nicolas Schlegel, Luzern - Christoph Schür, Zurich - Alessandra Spada, Lausanne - Gianin Thomann, Bern.

HONORS, AWARDS, APPOINTMENTS

Balmer Prize 2020 handed over to Hans Ueli Ehrensperger



Report by Jan Cvengros, ETH Zurich and President of the SCS Division of Chemical Education

A constant postponing or cancelling events became rather normal during the pandemics. So I assume that no one will raise eyebrows when reading my report in 2022 about handing over the Balmer prize in 2021 to the awardee, who received it in 2020.

During the online Future of Chemical Education symposium 2021 (of course postponed from 2020) we had to resort to award

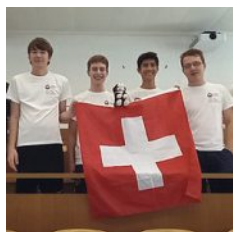
Hans Ueli Ehrensperger, a retired chemistry teacher from Kantonsschule Frauenfeld, only in a virtual fashion. So when I was asked to take care of delivering the medal and the certificate to Hans Ueli later that year, I had no doubt that I will go on a little trip to Frauenfeld rather than wrap up the items and send them by post.

This personal encounter shortly before Christmas was a valuable experience. Just after a couple of moments spent with the recipient of the Balmer prize in the chemistry department I realized, how much teaching chemistry meant to him. Hans Ueli accompanied me through the chemistry classrooms, labs and storage rooms with a lot of passion and pride. Thanks to his strong commitment in the past the department developed and took its current shape. Particularly unique are the lab benches surrounding the lecture room, which give pupils an opportunity to perform simple experiments during the lecture and thus directly interact with the discussed topics. Hans Ueli also showed me a large collection of experiments and items developed by him for a variety of topics in chemistry curriculum. Some of them (e.g. a model of sodium chloride, which can be easily assembled or dismantled) were later further developed and are available for the teaching community in the VSN-shop. At the end of the day there was absolutely no doubt that the prize is in good hands (Fig.1).

Do you know some colleagues from your chemistry, who are similarly passionate about teaching chemistry and designing new tools for chemistry classes? The call for nominations is opened and the deadline for all documents to reach the Swiss Chemical Society is September 30.

More information about the Balmer Prize: scg.ch/balmer

A bronze medal and honorable mention for Swiss students at IChO 2022



From July 10 to 18, 326 young talents from more than 80 countries competed in the fields of molecules, elements and reactions. Due to the ongoing global pandemic, the International Chemistry Olympiad (IChO) was held online for the third year in a row. For the four Swiss participants, however, the event was not limited to online participation.

They spent an entire week in Basel, together with the teams from Austria and Germany.

Members of the Swiss team:

- Cedric Bärlocher Aguilar, Burgdorf High School (BE)
- Silas Waldvogel, Kantonsschule Schaffhausen (SH)
- Thomas Zaugg, Kirchenfeld grammar school (BE)
- Yannik Straumann, Vocational Training Center Baselland (BL)

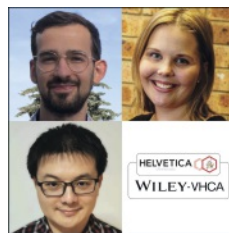
Silas Waldvogel won a bronze medal and Yannik Straumann was awarded an honorable mention.

Challenging tasks

“I am relieved and satisfied with the results we achieved,” said Patrik Willi, president of the Swiss Chemistry Olympiad. A five-hour theory exam on July 13 decided about the ranking. This was very demanding, but not as difficult as Willi might have expected from the host country, China. Chemical understanding and also a lot of logical combinatory skills were required to arrive at the correct solution with the given information and equations. There was no practical test in the virtual competition, however, regrets Willi. Standing in the lab and experimenting is normally the strength of the Swiss participants.

Website Swiss Chemistry Olympiads: chemistry.olympiad.ch

SCS Helvetica Prize 2022 awarded to Jordan De Jesus Silvan and Weilong Liu/Emma E. Watson



The jury of the board of Helvetica and the SCS are proud and happy to announce the best winners of the 2022 award for the best published papers of PhD/ Postdocs 2021/22 in Helvetica Chimica Acta.

The ceremony will take place on the occasion of the SCS Fall Meeting 2022 in Zurich, 08.09.2022, where the editors in chief, Prof. Eva Hevia and Prof. Jérôme Waser, as well as Helvetica Managing Editor Dr. Richard Smith, will hand over the prize to the three winners in the afternoon plenary session at 17.50h.

1st prize: “Development and Molecular Understanding of a Pd-Catalyzed Cyanation of Aryl Boronic Acids Enabled by High-Throughput Experimentation and Data Analysis”

<https://doi.org/10.1002/hlca.202100200>

Corresponding author: Christophe Copéret

First author and awardee: **Jordan De Jesus Silva**, ETH Zurich, CHF 1000

2nd prize: “Photocatalysis in Chemical Biology: Extending the Scope of Optochemical Control and Towards New Frontiers in Semisynthetic Bioconjugates and Biocatalysis”

<https://doi.org/10.1002/hlca.202100179>

Corresponding author: Nicolas Winssinger

Awardees, as prize is split: **Weilong Liu** and **Emma E. Watson**, University of Geneva, both CHF 250

We like to congratulate the winners again and are looking forward to the ceremony on September 8.

Source: scg.ch

JOURNAL NEWS

Helvetica, Volume 105, Issue 7, June 2022



Research Articles

Conformations of 4-tert-Butyloxy-, 4-(Trimethylsilyloxy)- and 4-(Trimethylstannyl)oxy-6-methyl-2H-pyran-2-ones in the Crystalline State and in Solution
Marcel Baak, Bernhard Jaun, Ferdinand Belaj, Reinhard Neier

The Role of Hydrazine in Colorimetric Probes Based on Ferrocene Derivative

Xueyan Ma, Lixia Liu, Jia Wang, Yongbing Hao, Xiufang Xu, Xiuefang Shang

Website: onlinelibrary.wiley.com/journal/15222675

INDUSTRIAL NEWS

Source: www.chemanager-online.com

WHO Board Agrees Emergency Response Committee

May 30, 2022: The governing board of the World Health Organization (WHO) has agreed to form a new committee to help speed up the response to health emergencies such as Covid-19. The action addresses criticism of the agency's perceived slowness to act during the early phase of the coronavirus before it became a full-blown global pandemic. Under the resolution passed unanimously at the annual meeting of the organization's 34-member leadership, the WHO will create a new Standing Committee on Health Emergency Prevention, Preparedness and Response that will analyze some of the shortcomings of the recent past. The organization's faster response to disease outbreaks is seen as crucial as a new potential threat arises in the shape of the monkey pox. The disease is endemic in Africa but has recently emerged in European populations that have not been in contact with that continent. Up to now, the WHO – as well as other health authorities – has downplayed the threat of a monkeypox pandemic emerging from the outbreak that has now spread to 20 countries; however, the experience of the past two years has made many people wary. Austria's Clemens Martin Auer introduced the resolution, which was backed by Canada, the EU, Japan, Moldova, Switzerland, the US, UK, and Vanuat. According the Reuters news agency he told the board that due to the WHO's inaction, the world's governing bodies missed the opportunity to have immediate consultations after the PHEIC of the coronavirus pandemic was declared. The new standing committee will conduct oversight of the health organizations emergencies program "in ordinary times" to test its fitness to respond, making it an "indispensable part of the new global architecture on health emergency," Auer said. Some infectious disease experts are already calling for fast action to curb the

spread of monkeypox. While this disease is not as transmissible or dangerous as Covid, the scientists believe there should be clearer guidance on how long an infected person should isolate, more explicit advice on how to protect people who are at risk and improved testing and contact tracing.

The European Medicines Agency (EMA) has said it may consider expanding the full approval of the vaccine produced by Danish biotech Bavarian Nordic to prevent monkeypox. In contrast to North America, the shot is only authorized in Europe solely to prevent smallpox, although it has been used off label for immunization against monkeypox. In the US, the Centers for Disease Control (CDC) has declared monkeypox to be a public health urgency, but not an emergency. Danish biotech Bavarian Nordic is producing a freeze-dried version of the vaccine to the US Department of Health and Human Services' Biomedical Advanced Research and Development Authority (BARDA) for the country's Strategic National Stockpile.

Lanxess and Advent Clinch DSM Plastics Deal

June 1, 2022: German specialty chemicals producer Lanxess and private equity investor Advent International have clinched a carefully constructed deal to buy DSM's engineering plastics business for around €3.7 billion. The assets will then be merged with the Lanxess engineering plastics portfolio to create a new market player with annual sales of around €3 billion. Although the buyout partners never confirmed speculation early this year that they were bidding for the activities DSM has successively announced plans to peel off, the duo nevertheless had been tipped to get the nod. Several other prospective buyers tentatively threw their hats at the ring if not into it. As one of the last, Austrian petrochemicals group OMV recently said it planned to participate in the next bidding round. Earlier, the Bloomberg news agency reported that privately owned Koch Industries was a potential bidder, while private equity investor SK Capital is believed to have looked at the business. Lanxess announced in November 2021 that it planned to carve out its PA- and PBT-fo-



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cused High Performance Materials (HPM) division into a legally independent entity. Observers speculated at the time that this could be the prelude to exiting the business that is part of its legacy from Bayer – the now Cologne-based company was spun off and floated in 2004. Under the terms of the transaction announced on May 31, Advent will hold “at least” 60% of the new joint venture’s equity. Lanxess will receive an initial payment of €1.1 billion from its private equity partner and a share of 40% in the new plastics maker for which no name has yet been announced. Day-to-day operations of the JV will be financed through equity from Advent and external debt. After the asset transfer, the German chemical producer will no longer consolidate the HPM businesses but will report sales and earnings at equity in its financial statements. Lanxess will use proceeds from the transaction to pay down debt and strengthen its balance sheet. The company also will initiate a share buyback program with a volume of up to €300 million. At the earliest three years after completion of the deal, expected in the first half of 2023, Lanxess will have the option to sell its stake to Advent at the same valuation. The partners speculate that the JV’s EBITDA margins could then be higher as the combination and enhanced critical mass could generate strong synergies.

Portfolios complement each other

It is not clear whether the European Commission, which functions as the EU’s antitrust authority, will mandate any sell-offs. Most observers believe this is unlikely, however, as the portfolios are largely complementary, and the PA assets highly specialized. Lanxess CEO Matthias Zachert said the two plastics portfolios, value chains and global positioning “complement each other perfectly.” Also, he noted that the global production network is characterized by a high degree of backward integration. Both the businesses to be merged have annual sales of around €1.5 billion, though DSM’s more specialized product lines have higher margins, at slightly above 20% of EBITDA, compared with 14% for the Lanxess slate. The Dutch workforce totals 2,100, while the German activities employ 1,900. The Lanxess HPM spinoff also includes a Urethane Systems business unit, which the company has indicated could be divested in the medium term as it is not a good fit with the engineering plastics units. The DSM slate is focused on PA 6 and PA 4.6, along with polyester specialties such as PPS, in addition to thermoplastic composites. In April, the Dutch group agreed to sell its protective materials business, which primarily includes its Dyneema fiber brand, to US specialty polymer materials maker Avient for an enterprise value of \$1.485 billion. This deal is expected to close in the second half of 2022. Following completion of the current transaction, DSM has announced it will merge with Switzerland’s Firmenich into what the companies said would be a leading supplier of food ingredients and beauty and well-being products.

Firmenich-DSM Merger to Create Sector Giant

June 2, 2022: In an M&A market that is heating up, one mega deal begets another, as market watchers speculate on what the next big move might be, when it might come and which players will be at its center. To eyes that are focused on the materials sphere, the news on May 31 that DSM planned to merge with Switzerland’s Firmenich was literally a footnote – buried deep in the story that the Dutch company had agreed to sell its last remaining plastics businesses to German chemical producer Lanxess and private equity investor Advent International. For those following the nutrition, flavors and fragrances sector, however, it was the only story of note and deserving of its own headline-grabbing fanfare. The second all-European transaction announced in a day – which analysts have pegged as being worth around €41 billion – will create a “global powerhouse” in

the specialist products needed for a booming market in alternative foods and nutrition, the companies said. The new entity, to be called DSM-Firmenich, will aim to blend the two participants’ respective strengths, DSM’s in biotechnology and nutrition and Firmenich’s in molecular engineering and flavors and fragrances. Expected to close in the second half of 2023, subject to regulatory clearance, the merger will be effected through a dual modus, including a one-to-one public offer for DSM shares in exchange for DSM-Firmenich shares. The Firmenich family shareholders will swap their shares in the existing company for equity in the new company, as well as receiving an estimated €3.5 billion in cash. DSM-Firmenich’s equity will be weighted toward the Dutch merger partner, whose shareholders will hold 65.5% of the new company listed on the Euronext exchange in Amsterdam. The Firmenich family will own 34.5%. While the new player will be legally domiciled in Switzerland, it will have dual operating headquarters at Kaiseraugst, Switzerland, and Maastricht, the Netherlands. The Dutch company’s two co-chief executives, Geraldine Matchett and Dimitri de Vreeze, will lead the merged enterprise as they have since 2020. DSM’s Thomas Leysen will continue as chairman of the supervisory board, while Patrick Firmenich will serve as vice chair. As the expected new market leader, DSM-Firmenich would push each of the current players, including current number one International Flavors & Fragrances of the US, number two Givaudan of Switzerland and Germany’s Symrise, a notch downward. The combined company’s portfolio will be divided into four key business lines: perfume and beauty, with annual sales of around €3.3 billion; food and beverage with revenues of €2.7 billion; health and nutrition with €2.2 billion; and animal nutrition with €3.3 billion. Altogether, it will have 28,000 employees. Based on 2021 figures, Firmenich will contribute annual sales of 4.2 billion to the pro forma total, along with an EBITDA margin of 19%. DSM will contribute €7.3 billion, after deducting its materials business, in addition to adjusted EBITDA of €1.4 billion and an adjusted EBITDA margin of 19–20%. Putting the two companies together on an aggregate basis will give rise to a major player with around €11.4 billion in sales and EBITDA of €2.2 billion, DSM’s Matchett commented, adding that “we will be securing a very strong balance sheet.” Going forward, the combined company is projecting mid-term 5–7% sustainable organic sales growth annually, driven by innovation, and a mid-term adjusted EBITDA margin of 22–23%. But Matchett said exploitation of synergies could add €350 to the projected pro forma adjusted EBITDA, along with about €500 million in annual sales. The last major deal in this market took place in 2021, when IFF beat Ireland’s Kerry Group to acquire DuPont’s nutrition and biosciences business for \$2.6 billion. At the outset, former DuPont shareholders owned 55.4% of the combined company.

How China’s Supply Chain Issues Affect the Global Chemical Industry

June 2, 2022: Currently, China’s chemical production and export is affected by unprecedented restrictions, mainly but not exclusively as a consequence of strict anti-Covid policies. Before getting into the details of the impact of Covid and the subsequent political measures, it is worth remembering that this is not the first nor the only impediment to China’s chemical exports. Environmental regulation has been tightening continuously over the past few years, and environmental performance has become a major criterion in evaluating local government officials. As a result, if in conflict with quantitative economic growth, environmental concerns now increasingly dominate. This has particularly affected many smaller chemical companies focusing on niche fine chemicals. For example, for some specific halogenated aromatics that we examined for a Western client, the number of active Chinese producers shrank from 10 to 4 within

the last 4 years. To give an impression of the magnitude of the issue, in Jiangsu province – the province with the second biggest chemical production in China – about half of the chemical companies, or about 2000 entities, have been closed in recent years. As the relocation of chemical production away from cities and into chemical parks continues, further closures are likely. And while it is true that many of the fine chemicals producers that are closing down are small ones focusing on the lower end of the market and utilizing older technology, they still contribute to a significant share of China's chemical exports. Environmental rules and enforcement has been always strict in Beijing, Shanghai, Zhejiang and Guangdong, but more radical changes, aggressive environmental performance targets and strict enforcement is observed in Hebei, Shandong, Northern Jiangsu, Henan and all along the Yangtze River. Other trends that may to some extent contribute to the declining importance of exports for Chinese chemical companies are the dual circulation policy (essentially a government policy encouraging a stronger focus on the domestic market and less reliance on external trade) and the stronger political support for domestic development of high-end chemicals rather than the (partly export-driven) capacity buildup for volume chemicals. But indeed, the current disruptions of chemicals exports are mostly due to anti-Covid restrictions. These restrictions affect chemical exports via a number of different pathways:

Workforce: Most workers in areas affected areas by lockdowns (which covered about 25% of China's total population and a higher share of the urban population) are forced to stay at home and thus unable to work in chemical plants (incidentally, as of the date of writing of this paper, one of the two authors of this paper had been under lockdown in Shanghai for nearly 80 days, though admittedly this had not had an impact on Chinese chemical production). While some factories were given special permission to work under "closed loop" conditions (the workers essentially are quarantined within the factory), even this system does not guarantee uninterrupted production due to the shutdown of suppliers and logistical issues.

Harbor capacity: In May 2022, the government reported that container throughput of the Shanghai port had recovered and reached 82.4% of the volume of April 2021. The point that a year-on-year reduction by more than 17% is regarded as a sign of recovery by the government is an indication of the severity of the situation. Across the rest of China, in early May the waiting time for export containers had increased by 22% compared to mid-March.

Trucking capacity: According to online marketplace operator Freightos, Shanghai has lost roughly 45 per cent of its trucking capacity since the end of March (partly the result of truck drivers from higher-risk areas of Covid being denied entry). Thus, the transportation of chemicals from the producers to the harbor is often the greatest bottleneck.

Concentration of chemical production in specific regions: The Greater Shanghai area (including the neighboring provinces of Jiangsu and Zhejiang) is one of the three most important producing region for export chemicals. At the same time, chemical production in China is often highly concentrated in specific regions, making these segments particularly vulnerable to even relatively local restrictions. It is less about the big, state-owned chemical companies (Sinopec, PetroChina, Sinochem, ChemChina), but more about the private-owned and provincial state-owned chemical enterprises that create the supply chain disruptions.

Of course, these issues only matter because of China's high importance for the global chemical industry. According to CEFIC, China accounts for about 45% of the global chemical market, up from 26% in 2010. This is a far higher share than China's contribution to global GDP of about 18%, hinting at the high importance of chemicals for China. Apart from being big, China's chemical industry also shows strong growth – the CAGR

was 8.1% for the period from 2010 to 2020 compared to a global average of 3.4% and an even lower growth in Western countries. Furthermore, as China's global share of chemical capital spending increased from 41.6% in 2010 to 47.8% in 2020, China's importance is likely to increase further. Consequently CEFIC expects China's share of the global chemical market to reach 49% by 2030. China's 14th five-year plan (FYP) until 2025 and especially the 15th & 16th FYP until 2035 forecast a continued growth and dominance of the chemical industry, reaching about 62% global chemicals market share by 2035. The focus will shift from import substitution investments, self-sufficiency in supply and hazard free, safe operations to higher value specialty chemicals, wind and solar based energy generation, export leadership and innovative, greener products. That said, China is not actually the biggest global exporter of chemicals – with an 8% share of global exports, it ranks below both the USA and Germany. And due to higher imports particularly of specialty chemicals, it is actually a net importer of chemicals. To understand the current supply chain issues, a slightly more differentiated analysis of the situation is thus required. For some chemicals, China is the biggest producer but also the biggest consumer – examples being PVC, for which China's 42% share of global production capacity is not far off its share of global PVC consumption (43%). The estimated Chinese share of global adipic acid capacity of about 50% is also probably only slightly larger than its global consumption share. For other products such as silicon, China is a big producer (accounting for about 64% of global production) as well as a big consumer and exporter. In fact, the implementation of US president Biden's plans to support solar energy currently clashes with the prohibition of importing materials from China as a reaction to China's Xinjiang policy – the USA suffers from a shortage of non-Chinese silicon for solar applications. China is also both the biggest global pesticide producer producing about half of the global total, and the biggest pesticide exporter. For quite a few chemicals, China is by far the largest global producer and produces primarily for export. For example, China is the largest producer of vitamin C, with a production market share more than 80%. For antibiotics, China's export value in 2020 (US\$3.98 bn) exceeded the value of the next four biggest countries combined (US\$3.68bn, countries Switzerland, Italy, India and Belgium, source OEC). Also, it is estimated that Chinese manufacturers make around 40% of all APIs used worldwide, a value that certainly far exceeds the Chinese share of global consumption and thus indicates high exports. The same applies to some downstream products with important chemical input – for example, 90% of the global production capacity of PVC gloves comes from China, and 90% of the PVC gloves produced in China are for export. Indeed, global reliance on supply from China is even bigger for some basic fine and specialty chemicals than for high-volume chemicals as economies of scale have increasingly shifted a major share of global production capacity to China. For example, in Europe and other parts of the world there is ample supply of polymer resins but a lack of smaller plastics components such as plastics additives and glass fiber mats. These areas that were traditionally viewed as being safe from a supply security perspective are now turning into focus. Of course, if there is no supply of additives, plastics compounding is not possible and the demand for the basic resins will also decline while customer industries such as automotive will suffer from supply shortages of compounded polymers. So, while China focuses on growth in specialty chemicals, compounders and masterbatch producers in Europe are struggling to cover their supply needs. As a consequence of these difficulties, companies which rely on imports from China for their production are seeking ways to diminish the disruptions. Some short-term measures include diverting goods from Shanghai to other Chinese ports, including Ningbo, using rail freight rather than trucks, and or-

dering earlier. In the longer term, foreign businesses are considering their investments in China. This is not only true for the chemical industry, but even more so for its customer industries. Apple has just proposed boosting production in India and Vietnam in order to reduce its dependence on China, where currently more than 90% of Apple products are manufactured. Certainly, some chemical companies will follow this approach – indeed, there is substantial excitement among both Indian and selected Western producers of specialty chemicals, as they see opportunities in replacing Chinese suppliers. And given that China is unlikely to abandon its zero-Covid stance until after the Party Congress in autumn, the risk of sudden shutdowns, production suspensions, and other disruptions is likely to persist for quite some time. Not a bad time for importers of Chinese chemical companies to work on backup plans, then.

CordenPharma Lifts xRNA Capability in Italy

June 13, 2022: German CDMO CordenPharma, a specialist in Active Pharmaceutical Ingredients (APIs), excipients, drug products and packaging services (APIs), is investing more than €10 million in a new lipid nanoparticle (LNP) formulation, development and production area at its sterile injectable facility in Caponago, Italy. The company said the expansion, to take place from late 2022 into early 2023, is designed to support customers working on pre-clinical and clinical development of xRNA-based therapeutics – for example mRNA, siRNA, saRNA, microRNA or similar – and will enable them to maximize and speed up the delivery of their innovative drug products into clinical stages and beyond. The new hub for LNP formulation is part of a move to build up a base for cGMP manufacturing in which the company can make clinical batches at any stage, including small commercial drug products that adopt LNP technology. Around 15 high-level jobs will be created in the process. CordenPharma said the new LNP capability will be built alongside existing injectable formulation technologies, enabling it to easily drive LNP-based drug formulations into liquid (vial or syringe) or lyophilized finished dosage forms. In March this year, the company conducted its first positive tests of assembly and characterization of functional lipid nanoparticles to produce a prototype formulation. To this end, it combined mRNA sourced from compatriot Wacker Chemie with lipids it produced in Switzerland and France. The latest investment will also help introduce the advanced pharmaceutical manufacturing technology to Europe and support the creation of a highly resilient supply chain and robust next-generation operations. In addition to formulation, the expansion will integrate the sourcing of lipids across the company's network, combining them seamlessly into the targeted genetic payload, the CDMO said. Along with microfluidic technology, CordenPharma will deploy Jet-Impingement via a modified T-Junction. This technology, it said, will be especially suited to accommodate larger-scale manufacturing. Fabio Stevanon, global injectable platform director, called the investment in LNP formulation capabilities a “major step forward” for the company, not only boosting innovation in R&D, but also give it cutting-edge manufacturing techniques and complementing its position as a leader in synthetic lipids. Along with investing in LNP services, the CDMO also plans to expand its drug product primary and secondary packaging capabilities at Caponago, adding highly automated, high-throughput filling and packaging lines. The additional capacity will focus on Pre-filled Syringes (PFS) and similar parenteral delivery technologies including unit-dose, and in the future, dose-injector devices. CordenPharma is in the process of being acquired by private equity investor Astorg, which recently signed a binding agreement with current owner International Chemical Investors Group (ICIG). Details have not been announced, including when the deal is expected to close.

Samsung Biologics in \$81 Million Deal with Novartis

June 13, 2022: In their first-ever collaboration, South Korea's Samsung Biologics and Switzerland's Novartis have inked an initial \$81 million contract manufacturing and development deal, Samsung said in a regulatory filing. The Korean biotech, part of the vast Samsung industrial conglomerate, said the agreement represents 6.4% of its 2021 sales of \$1.25 billion. It did not reveal details of what the cooperation with Novartis would involve, but analysts said the deal fits well with the company's plans to build up a global position in the CDMO sphere. Samsung Biologics currently collaborates with a number of international drugmakers, and according to Korean press reports, it is swiftly gaining traction against its peers. In two trading days at the end of April, it squeaked by the world's biggest CDMO, Lonza, in market capitalization, with a currency adjusted converted market cap of 59.43 trillion Korean won to Lonza's 55.62 trillion won (42.85 Swiss francs). The Samsung offshoot is already seen as ahead of Lonza in production capacity with current output of 364,000 liters at Plants 1, 2 and 3, compared with the Swiss CDMO's 303,000 liters. When Plant 4, designed as the world's largest single plant with a production capacity of 256,000 liters, is completed in 2023, its capacity will rise to 620,000 liters. As a major step toward lifting its profile, in February this year Samsung Biologics said it would buy out US biologics giant Biogen to take full control of joint venture Samsung Bioepis for \$2.3 billion. Through the buyout, CEO John Rim said the Korean firm aims to develop into a biopharmaceutical firm on three pillars: CDMO, biosimilars and new drug development.

Neste, Covestro and SK Geo Centric Partner on PU Feedstock

June 22, 2022: A collaboration between Neste, Covestro and SK Geo Centric aims to use renewable raw materials to produce MDI – a key feedstock for polyurethane production. Neste will provide its branded Neste RE 100% renewable raw material – made from chemically recycled plastic waste and residue oils and fats – to SK Geo Centric in South Korea for further processing into benzene. The benzene will then be sent to Covestro, which will use it as feedstock for MDI production at its site in Shanghai, China. “I am much pleased that through this collaboration we continue to ramp up the market for such sustainable alternative materials. This enables us to supply our customers in Asia-Pacific with more sustainable MDI based on mass-balanced raw materials,” said Sucheta Govil, Covestro's chief commercial officer. “Using such materials, Govil said, is attractive because it will also help them achieve their climate goals. Another core benefit of this line of products is that it is a technical drop-in solution that our customers can use immediately without a major changeover in their plants.” The companies said the cooperation marks the start of possible future collaborations between them, aimed at replacing fossil feedstocks with more sustainable alternatives for producing chemicals and polymers in the Asia-Pacific region and beyond. Neste launched its Neste RE raw material in November 2020. The Finnish oil and refining group has also been collaborating with LyondellBasell on renewable, bio-based PP, as well as with Borealis on renewable propane/PP. Swiss specialty chemicals producer Clariant has also launched a range of additives using Neste RE.

Clariant Restructures Business, Leadership

June 23, 2022: Clariant is restructuring its business and leadership to position itself for long-term sustainable growth and implement a cultural transformation. “Clariant has undergone a successful portfolio change in recent years and is now a true specialty chemicals company. Now is the right time to align the organization more closely to customers, businesses and markets. The new set-up will further strengthen our position as leader

in sustainability and establish a best-in-class governance,” said chairman Günter von Au. The Swiss group will cut the number of business units from five to three and locate the unit presidents in the regions with the largest customer base and highest growth for the respective businesses. The existing catalysts business unit and biofuels & derivatives line will be combined into one single business called catalysts. Jens Cuntze, previously head of corporate planning and strategy at Clariant, has been appointed president of the new catalysts unit and the Asia-Pacific region. Functional minerals and additives will merge into adsorbents & additives. Angela Cackovich, who joins from German tapes and adhesives manufacturer Tesa, will be president of this division as well as Europe, the Middle East and Africa. Industrial and consumer specialties and oil & mining services will form care chemicals, which will be headed by Christian Vang, formerly head of industrial and consumer specialties and head of corporate planning & strategy. Vang will be responsible for the Americas region. Clariant is also creating a new executive steering committee that will include CEO Conrad Keijzer, chief financial officer Bill Collins and the business unit presidents. This, the company said, will enable it to reduce hierarchical layers and overall complexity across business functions. It is expected to foster greater accountability, speed up decision-making processes and enhance customer proximity, while strengthening diversity. The roles of chief operating officer (COO) and chief transformation officer (CTO) are being eliminated. Consequently, the current incumbents, COO Hans Bohnen and CTO Bernd Hoegemann are stepping down and will pursue careers outside Clariant. Additionally, Clariant has launched its diversity, equity and inclusion roadmap, under which it said it has set ambitious targets for 2030. These include doubling female representation to at least 30% and increasing the share of leaders with national origin outside of Europe from 32% to more than 40%. In April, the company completed an internal investigation into accounting irregularities in its 2020 financial results. The former CFO Stephan Lynen was replaced by Collins.

Novartis Pledges to Fight Tropical Diseases and Malaria

June 28, 2022: Swiss drugmaker Novartis has made a five-year financial commitment of \$250 million to fight neglected tropical diseases (NTDs) and malaria. The pledge endorses the Kigali Declaration, which saw world leaders reaffirm their commitment to end NTDs and malaria during the 26th Commonwealth Heads of Government meeting held from 20-25 June in Kigali, Rwanda. The Declaration aims to mobilize political will and secure commitments to meet global targets under the World Health Organization’s NTD 2030 road map. “Over the past decade, great progress has been made against NTDs, but there is still a lot more work to be done. Novartis will continue progressing our long-standing commitment to helping realize a world free of NTDs,” said Novartis CEO Vas Narasimhan. The Basel-headquartered group plans to spend \$100 million to advance its NTD program, which focuses on novel drug candidates for four diseases, including Chagas disease, leishmaniasis, dengue and cryptosporidiosis. The proteasome inhibitor LXE408 is currently in a Phase 2 clinical trial in patients with visceral leishmaniasis, and an NS4B inhibitor, EYU688, is in phase 1 development in dengue. Novartis’ cryptosporidiosis drug, ABO809, recently entered Phase 1. With regard to malaria, the Swiss drugmaker will spend \$150 million to advance the clinical development programs of its three novel drug candidates to combat the emerging resistance to artemisinin. It will also continue to support the development of an optimized formulation for neonates and infants under 5kg, for whom no treatment currently exists. According to Novartis, about 1.7 billion people worldwide suffer from NTDs, which are prevalent in tropical areas and mostly affect impoverished communities, causing devastating health, social and economic consequences.

Gregoire Poux-Guillaume to be new AkzoNobel Chief further CEO of Swiss industrial engineering company Sulzer and General Electric

June 29, 2022: AkzoNobel has appointed Gregoire Poux-Guillaume as its new chief executive with effect from Nov. 1, 2022. The 52-year-old French national will succeed Thierry Vanlancker, who has held the position since 2017 and whose term of office ends this year. The new appointment is subject to shareholder approval and will be on the agenda of an Extraordinary General Meeting scheduled to be held in September this year. The Akzo chief-to-be has 25 years of international business experience, having served in previous roles as CEO of Swiss industrial engineering company Sulzer and General Electric’s renewable energy unit GE Grid Solutions. He was also a senior managing director at private equity group CVC Capital Partners. Nils Smedegaard Andersen, chair of AkzoNobel’s supervisory board, said: “Gregoire Poux-Guillaume is an experienced business leader with a track record of delivering above market growth and building strong teams. We’re happy and confident to have found the best match for AkzoNobel to continue our position as a frontrunner in our industry. His experience will provide a valuable perspective to help us with future growth and financial performance.” Andersen added that the Dutch company is grateful for Vanlancker’s leadership, under which AkzoNobel successfully split off its Specialty Chemicals business and became a “focused and competitive paints and coatings company, with strong profitability and significant returns to shareholders.”

Novartis Confirms 8,000 Global Jobs Will be Axed The initial goal of the restructuring was to save at least \$1 billion a year

June 29, 2022: Novartis has confirmed reports by Swiss daily newspaper Tages-Anzeiger that it plans to slash 8,000 jobs worldwide. Rumors of massive layoffs have been circulating since April. While the Basel-based drugmaker has acknowledged the plans in dribbles, up to now it has not named a figure. The headquarters site in Basel is expected to bear the brunt of the pare-down, as CEO Vas Narasimhan acknowledged that some 1,400 of the approximately 11,000 Swiss job are on the line. The initial goal of the restructuring was to save at least \$1 billion a year by 2024, the CEO said earlier. A Novartis spokesman told US trade journal Fierce Pharma that the layoffs will allow it to reduce duplications of business structures in every country and at the same time make Novartis “leaner and simpler.” Along with shedding staff, the plans are aid to foresee eliminating positions. Parallel to the company’s April announcement that it would merge its pharmaceuticals and oncology businesses into a new unit called Innovative Medicines (IM) and at the same time create separate US and International commercial organizations, Novartis at the time confirmed Swiss media reports that this could mean the loss of thousands of jobs. The pharma giant is additionally is combining its technical operations and customer & technology solutions units into what it said would be a standalone “operations” unit. Most of the leadership teams for this have apparently been filled. As another harbinger of significant change, Novartis recently appointed former Bernstein analyst Ronny Gal as head of M&A as well as chief strategy and growth officer. Narasimhan has hinted that the company is eyeing deals worth as much a \$2 billion. Novartis said earlier that it expect the new structure to be fully in place and operational by the end of 2022. So far, it has left unanswered the question of whether it plans to hang onto generics subsidiary Sandoz or divest it. At the end of 2021, the drugmaker had 41,280 employees working in sales and nearly 12,800 in operations and 4,727 in general and administration.

IMCD Appoints Christoph Garbotz as Managing Director in Switzerland

July 4, 2022: IMCD Switzerland has appointed Christoph Garbotz as Managing Director for Switzerland, effective as of July 1, 2022. In his new role, he will lead strategic growth ambitions by focusing on the expansion of new and existing principals, driving commercial excellence, exploring opportunities for M&As, developing talents, and further advance the digitalization of the business. Garbotz will be based at the IMCD offices in Zurich, Switzerland, and will be reporting to Frank Schneider. Since January 2020, Garbotz was responsible for managing the Business Units Pharma, Beauty & Personal Care as well as Home Care, I&I at IMCD Germany. Prior to joining IMCD, he held different leadership roles at BASF. Garbotz holds a PhD in Business Administration from RWTH Aachen University, Germany.

Sanofi Joins Pfizer in nonprofit Drug Distribution

July 5, 2022: Two globally oriented drugmakers, Pfizer and Sanofi, are making moves that some may interpret as attempts to allay the pharma industry's reputation for being "only in it for the money" but could potentially benefit poorer countries if all goes to plan. Unveiling what he called An Accord for a Healthier World at the delayed World Economic Forum held in Davos, Switzerland, in late May, Pfizer's CEO, Albert Bourla, said the company would distribute 23 of its medicines, many of them patented, to 45 low-income countries at cost. The purpose, Bourla said, is to "reduce the health inequities that exist between many low-income countries and the rest of the world." More recently, Pfizer pledged to donate profits from sales in Russia to causes that provide direct support to the people of Ukraine. This week, it was the French side's turn to show its charitable vein. On Jul. 4, Sanofi's Global Health unit announced the launch of Impact, a new brand of "standard of care" medicines aimed at nonprofit distribution to at-risk populations in underserved regions. The portfolio items to be distributed at cost include insulin, glibenclamide and oxaliplatin, as well as other drugs, and the initiative hopes to enable the secure distribution of 30 Sanofi medicines throughout 40 lower-income countries. The medicines considered essential by the World Health Organization cover a wide range of therapeutic areas, including diabetes, cardiovascular disease, tuberculosis, malaria and cancer. The launch of the Impact brand follows Sanofi's last-year establishment of Global Health, an in-house nonprofit unit dedicated to increasing access to healthcare and bolstering local healthcare systems in countries with low per capita GDP. This is "the first and only global initiative to provide access to such a broad portfolio of medicines in so many countries and across multiple therapeutic areas while funding local support programs and strengthening local inclusive businesses," Sanofi said. Up to now, the French pharma's nonprofit efforts reportedly have reached 150,000 patients, and the company's representatives are visiting potentially eligible companies to decide where to launch the first Impact volumes. At the height of the coronavirus pandemic, Pfizer was much criticized for primarily distributing the mRNA-based Comirnaty vaccine it produced together with German's BioNTech primarily to wealthy nations, providing the vaccine at cost to the US market. In a report prepared to coincide with the WEF, the international charity Oxfam said, "Pfizer has sold the most vaccines in the world but has delivered the least to low-income countries, as a proportion of total deliveries." The pharma major is now supplying Comirnaty as well as its Covid-19 oral antiviral treatment Paxlovid to 45 poorer countries, where it intends to reach 1.2 billion people. Specifically, the US pharma's distribution efforts will encompass 27 low-income countries and 18 others classified as lower-middle-income and will place emphasis on treating diseases that disproportionately impact low-income countries.

Lonza Builds Swiss Fill & Finish Facility

July 8, 2022: Swiss CDMO Lonza plans to build a large-scale commercial fill & finish facility in Stein. The new facility, to be located on the same campus as Lonza's existing clinical drug product capabilities, will cost roughly 500 million Swiss francs and should be completed in 2026. "This strategic investment completes our offering in drug product and strengthens our position as a leading CDMO with an unparalleled breadth of offerings across scales and technologies. Combined with our strong drug substance manufacturing footprint, the new facility will enable us to provide customers with an integrated end-to-end offering across their entire product life cycle," said CEO Pierre-Alain Ruffieux. The facility will also enable Lonza to capture additional market share, added Jean-Christophe Hyvert, president, biologics and cell & gene. Lonza has been expanding its drug product development and manufacturing services worldwide since 2016. Projects have been implemented in Stein, Basel and Visp – all in Switzerland – as well as in Guangzhou, China. On Jun. 1, Lonza announced it had added a dedicated early phase clinical manufacturing facility at its site in Bend, Oregon, USA. The facility comprises 11 suites, seven of which are for GMP processing, providing enhanced capabilities for the development and clinical manufacture of drug products and intermediates. Capabilities include spray dried dispersion powders for oral delivery, and dry granulation and compression into immediate-release dosage forms. The company is already installing additional capabilities that will be ready by the end of 2022. These include a second spray dryer designed specifically for the manufacturing of engineered particles for inhalation, as well as encapsulation equipment.

Avantium and Carlsberg Ink Offtake Deal for FDCA

July 11, 2022: Dutch biopolymer producer Avantium has won a new customer along the path to commercializing its renewable polyethylenefuranoate (PEF) as a replacement for fossil-fuel based PET, the material most used for plastic beverage bottles. The conditional agreement between the Dutch company and Copenhagen-based Danish beer brewer Carlsberg calls for the brewer to take a fixed annual volume of the 100% plant-based, recyclable and high-performance polymer that will be produced in Avantium's new plant for furandicarboxylic acid (FDA), when it starts up in 2024. The facility under construction is being billed as the first commercial plant for the production of FDCA, derived from plant sugars. Last year, Avantium signed offtake agreements with five customers, including French soft drink and fruit juices packager Refresco, Belgian PET bottle and preform manufacturer Resilux, Brazilian polyester film maker Terphane and film and fibers producer Toyobo, with which it collaborated on making PEF film from monoethylene glycol (MEG). These deals covered more than 50% of the flagship plant's capacity of around 2,500 t annually. Earlier this year, Avantium clinched an offtake agreement with Swiss masterbatch producer Sukano, which is also contributing know-how to develop antiblock masterbatches for PEF film applications. Carlsberg plans to use the PEF resin in various packaging applications, including its branded Fibre Bottle, which contains an inner layer of PEF that is being made in Avantium's pilot plant. In 2021, the Dutch and Danish companies signed a joint development agreement for several PEF applications, including the bottle. The viability of the Fibre Bottle, which is being touted as the first-ever bio-based and fully recyclable beer bottle, is being tested this summer in eight West European markets and introduced to 8,000 consumers and "selected stakeholders" at festivals and other events.

Solvias Boosts Testing Services with Cergentis Buy

July 18, 2022: Solvias, a Swiss CDMO serving the pharmaceutical, biotechnology, material science and cosmetic industries,

has acquired Dutch biotech Cergentis for an undisclosed sum. The deal bolsters Solvias' platform of biologics and cell and gene therapy (CGT) testing solutions. Based in Utrecht, Cergentis provides services based on its proprietary genomic analysis platform, supporting customers in the characterization and quality control of genetically engineered models, development of biopharmaceutical cell lines and CGT products. Archie Cullen, CEO of Solvias, said: "Cergentis is a cornerstone acquisition that expands our solutions supporting complex and emerging therapies. We will continue to pursue strategic acquisitions that add specialized capabilities to our offering and advance our goal of being a forerunner in our industry." Joris Schuurmans, CEO of Cergentis, will continue to lead his company's operations and will also join Solvias' leadership team with immediate effect. According to pharmaceutical market intelligence provider Evaluate, global CGT sales are projected to accelerate at a compound annual growth rate of 63% through 2026. As more researchers leverage emerging genetic engineering techniques to develop complex, novel medicines, they require sophisticated solutions to analyze their safety and effectiveness, Solvias said. The acquisition is the second for Solvias since partnering with health care investors Water Street Healthcare Partners and JLL Partners in 2020. A first purchase, in June 2021, was Chemic Laboratories, based in Canton, Massachusetts, USA. Solvias said this deal gave it a strong foothold in the US and highly complementary laboratory testing capabilities.

Vertex Buys ViaCyte for \$320 Million

July 19, 2022: US-based Vertex Pharmaceuticals has agreed to pay \$320 million in cash to acquire ViaCyte, a compatriot private cellular therapy company specializing in a treatment for type-1 diabetes (T1D). The transaction is expected to close later this year. T1D is caused by the autoimmune destruction of insulin-producing islet cells in the pancreas, leading to a loss of insulin production and impaired blood glucose control. ViaCyte said its pluripotent stem cell-based technologies are designed to address the limitations of donor islet transplants and "represent a major advance in the development of a functional cure for T1D." Vertex has its own investigational allogeneic stem cell-derived islet cell therapy for T1D called VX-880, which has potential to regulate glucose levels by restoring pancreatic islet cell function, including glucose responsive insulin production. VX-880 is said by Vertex to have already yielded "highly promising" safety and efficacy results from an ongoing Phase 1/2 study. "VX-880 has successfully demonstrated clinical proof of concept in T1D, and the acquisition of ViaCyte will accelerate our goal of transforming, if not curing T1D by expanding our capabilities and bringing additional tools, technologies and assets to our current stem cell-based programs," said Vertex CEO and president Reshma Kewalramani. The acquisition provides Vertex with complementary assets, capabilities and technologies, including additional human stem cell lines, intellectual property around stem cell differentiation, and GMP manufacturing facilities for cell-based therapies that could accelerate Vertex's ongoing T1D programs. Vertex also gains access to novel hypo-immune stem cell assets via ViaCyte's collaboration with Swiss gene-editing company CRISPR Therapeutics. Vertex is already working with CRISPR on an investigational therapy for sickle cell disease and transfusion-dependent beta-thalassemia.

Cytiva Invests in US Resins Expansion

July 20, 2022: Life science company Cytiva has acquired a chromatography resins factory in Muskegon, Michigan, USA, marking its first investment in new capacity outside its manufacturing base of Sweden. The company plans to transform the site into a biomanufacturing center for chromatography resins, which are used for analyzing or purifying biomolecules. Construction is

planned to begin in the third quarter of this year with manufacturing scheduled to start in 2026. "This shows our leadership in action, strengthening our focus on providing customers who use our resins to manufacture vaccines and life-saving therapeutics," said Emmanuel Ligner, Danaher Group executive and president and CEO of Cytiva. "When you're looking to help provide global biotechnology solutions to the world, it requires you to be nimble and flexible. By investing in Muskegon, Michigan, we will be closer to our North American customers, who are developing advanced biotherapeutics." The site's acquisition is part of Cytiva and Pall Corporation's \$1.5 billion expansion plans – both companies are part of Danaher. In July 2021, the firms said they would expand capacity and services across the world as part of Danaher's strategic growth plan. Investments are either underway or have recently finished at new sites and existing facilities. Excluding the Muskegon project, the plans include \$400 million to expand operations for cell culture media in the UK, Austria and the US as well as \$300 million to increase capacity for single-use technologies in the US and to fit out a new facility in Wales. An additional \$200 million has been budgeted for ongoing expansions at both companies' sites in Asia-Pacific, China, Europe and the US. On May 31, Cytiva opened a new cell and gene therapy manufacturing facility in Grens, Switzerland. The company also announced last month that it was opening a larger facility in Uppsala, Sweden, to expand capacity for Sephadex and Cytodex products by about 40%. Sephadex products are used primarily to purify plasma-based medicines such as coagulation factors, immunoglobulin and albumin, among others, while Cytodex is used for adherent cell culture in vaccine manufacture. "There are more than 2,000 components in plasma and more than 20 therapies that are currently approved using this technology. Research is ongoing but we know that the possibilities are great, and that's why we have prioritized the expansion of this facility, so that we can enable bringing life-changing therapies to patients faster and more efficiently," said Cytiva's general manager, resins and technologies, Sofie Stille. According to Cytiva, the increased demand for Sephadex products is driven by a growing market for blood plasma and manufacturing expansions at customers, while Cytodex has benefitted from significant growth in vaccine manufacturing over the past years.