Community News

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SCS Swiss Chemical Society

SWISS CHEMICAL SOCIETY NEWS

SCS Annual Report 2019

With pleasure we look back on a very interesting and active year. The Swiss Chemical Society not only continued and developed its well-established activities but again pushed new initiatives to face todays challenges. We also implemented new sections and networks to incorporate community members whose interest were not covered so far. In addition, the SCS took over the responsibility for existing programs that run now under the umbrella of the SCS and complete its activity portfolio.

The most important, new initiatives in 2019:

- SCS took over the operative responsibility for the Swiss National Technology Platform of SusChem to push the Green & Sustainable Chemistry approach in the chemical R&D;
- Within the Division of Analytical Sciences, the Section of Chemistry and the Environment was founded and initiated initiatives that will be implemented in 2020;
- The SCS Spring Meeting 2019 on the topic of Material Sciences showed the importance and the potential of this field and the SCS will follow up to keep the momentum and establish an active community;
- After a very successful symposium on Artificial Intelligence in Chemical Research in October 2018 the CHIMIA issue 12/2019 picked up the topic and reported on the latest development in this promising discipline;
- To increase the visibility of female researchers in our community the SCS initiated the Swiss Women in Chemistry Network that was launched with a fantastic inauguration event at ILMAC in Basel.
- Our next generation of researchers needs to be developed and actively supported and the SCS established a mentor group of young professionals that assist the Swiss Young Chemists' Association to define and manage their agenda.

Furthermore, we stayed actively connected to our partners and co-operated for many projects.

Please enjoy reading through the 2019 annual report that shows again a very active and lively society. The complete report is part of this CHIMIA issue or is available as pdf download on our website *scg.ch/about*.

Dr. Alain De Mesmaeker
President

David Spichiger
Executive Director

Invitation to the SCS General Assembly 2020

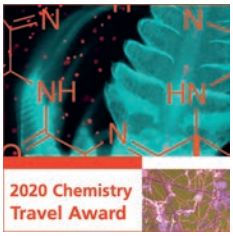
The Board of Directors invites all members of the Swiss Chemical Society and the delegates of its associated societies to join the 30th General Assembly.
April 3, 2020, 13.00–13.30h
FHNW, School of Life Sciences
Big Lecture Hall, Ground Floor
Hofackerstrasse 30, 4132 Muttenz

Provisional Agenda

1. Welcome and approval of the agenda
2. Election of the vote counters
3. Minutes of the 29th General Assembly from April 5, 2019 in Dübendorf (published in CHIMIA 5/2019, A430)
4. Annual report 2019 (published in CHIMIA 1-2/2020)
5. Financial statement 2019 incl. audit report
6. Discharge the Board
7. Elections
8. News and strategic projects
9. Outlook 2020/2021
10. Varia

Motions to the assembly can be submitted until March 20, 2020 to info@scg.ch. A summary of the financial statement 2019 will be published on the website after the formal audit.

Chemistry Travel Award 2020



Through the «Chemistry Travel Award», contributions towards the cost of participation at an international conference in the chemical sciences are granted to selected PhD students. The award is sponsored by the Platform Chemistry of the SCNAT and the Swiss Chemical Society

The award includes a contribution of CHF 1'000 towards the cost of an active participation (poster or oral presentation) at an international conference of three days or more between 15 May 2020 and 14 May 2021 in any field of the chemical sciences. Up to 45 awards will be distributed to selected doctoral students from Swiss research institutions. Selection will be based primarily on scientific accomplishments and on the submitted conference abstract.

- Only applications in English will be considered.
- The award can only be won once in a lifetime – winners of previous years are excluded.
- There is no limitation of winners per research group.
- The award money will be paid upon presentation of a confirmation of attendance from the conference.
- The deadline is 31 March 2020 (23:59)

The results will be communicated as soon as possible (around begin-May).
chemistry.scnat.ch/travel_award

Call for nominations for the Reaxys PhD Prize 2020

Now celebrating its 10th anniversary, the Reaxys PhD Prize is a unique global competition that recognizes accomplished young chemists for their innovative and rigorous research.
Open to PhD-level scientists from all research areas related to chemistry, this unique competition celebrates innovative, rigorous and forward-thinking research, helping the finalists and winners to drive their careers forward and network with other excellent scientists.
Who can apply? Anyone who is currently doing or has recently completed a PhD (after Jan 1, 2019) in the chemical sciences is eligible to enter.
Submission timelines: March 11, 2020.
elsevier.com/solutions/reaxys/reaxys-phd-prize

New NCCR: Sustainable Chemical Processes through Catalysis "Suchcat"

On December 16, the Swiss National Science Foundation announced the creation of six new National Centres of Competence in Research (NCCRs), added to the 16 currently ongoing. The NCCRs were set up in 2001 to create and fund networks that would carry out top-quality, long-term basic research "in areas of strategic importance for Swiss science, the Swiss economy and Swiss society."

The six new NCCRs have received 100 million CHF in funding from the Swiss government and their will initially run from 2020 to 2023 and then to a maximum of twelve years. Participating universities and businesses will channel further funds into them.

Prof. Jérôme Waser, EPFL Lausanne, and Prof. Javier Pérez-Ramírez, ETH Zurich, have been chosen to co-lead the new NCCR "Suchcat". Funded with CHF 17 million between 2020-2023, the project will lay "the groundwork for improving the sustainability, resource efficiency and carbon footprint of chemical processes and products, and of the chemical industry as a whole (sustainable chemistry)."

Project description

Chemistry is an enabling foundation of modern society, directly contributing to economic growth and life quality. Switzerland's chemical companies are among the world's most successful and the country has a long tradition of chemical research. But to preserve its leading position, the industry will need some vital prerequisites. It must adapt to face the grand societal challenges of the 21st century, such as the transition towards a carbon neutral society and meeting the food and healthcare demands of a growing population.

To succeed in this goal, it must learn to exploit the unique opportunities offered by advances in catalysis and digitalization to strengthen its capacity for continued innovation.

Sustainable Chemical Processes through Catalysis (suchcat) has set itself the ambitious target of creating new chemical value chains by accelerating the discovery and time-to-market of catalytic processes that enable the flexible production of customizable products from abundant and renewable feedstocks.

Embedding both academic and industrial expertise to fast-track the translation from idea to prototype to plant, suchcat addresses central goals underlying sustainable growth, secure energy supply, and safeguarding clean air, water, and soil.
snf.ch/en/researchinFocus/nccr
suchcat.ch
actu.epfl.ch/news

Anniversaries of SCS Members 2020

The Board members of the Swiss Chemical Society like to take the opportunity to congratulate our senior members that celebrate an anniversary in 2020. We wish all of them an enjoyable birthday and hope that we can spend many more exciting moments together.

95 Anniversary
Albert Eschenmoser, Küsnacht
Max Sahli, Kehrsatz

90 Anniversary
Peter W. Schiess, Basel
Dorothee Felix, Zurich

85 Anniversary
Emil Broger, Zurich
Hans Bill, Plan-les-Ouates
Jürg Maurer, Riehen
Helmut Wenck, Schloss Holte-Stukenbrock (D)

80 Anniversary
André E. Merbach, Pully
Ferdinand Näf, Carouge
Raphael F.G. Tabacchi, Cormondrèche
Walter Fuhrer, Lupsingen
Armin Guggisberg, Schlieren
Manfred Schneider, Hamm
Bernd Giese, Fribourg
Alois Nussbaumer, Zufikon
Michel Schurter-Moser, Wetzikon
Dimiter Hadjistanov, Riehen

75 Anniversary
Jürgen Vogt, Flüh
Alex N. Eberle, Liestal
Konrad Becker, Binningen
Erwin Götschi, Reinach
Hans Maag, Garmisch-Partenkirchen (D)
Steven V. Ley, FRS, Cambridge (UK)
René Schwarzenbach, Erlenbach
Max Rene Wolfensberger, Zurich
Stefan Bürki, Pfeffingen
Rudolf G. Baumeler, St.-Légier
Michele Parrinello, Lugano
Hans-Rudolf Schmutz, Augst

70 Anniversary
Alan Francis Williams, Genthod
Reinhard Neier, Neuchâtel
Georg Süss-Fink, Kronburg (D)
Henri Stalder, Basel
Vittorio Rasetti, Riehen
Albin Kümin, Aesch
Hans-Jakob Ammann, Himmelried
Werner Leupin, Liestal

Konrad Oertle, Therwil
Bruno Bernet, Zurich
Armin Pfenninger, Uetikon
John T. Welch, Albany NY (US)
Urs Stauss, Bern
Adrian Ammann, Zurich
Ronald Wyss, Basel
Horst Melzer, Rorschach
Richard Gamma, Riehen
Hans-Rudolf Marti, Küngoldingen
Rudolf Streit, Beinwil a. See
Peter Fankhauser, Meyrin
Titus A. Jenny, Villars-sur-Glâne
Hansjörg Walther, Münchenstein
Manfred Hofmann, Marly
Wayne Craig, Arlesheim
Urs von Arx, Biel
Josef Wendrinsky, Wien (AT)


A. Eschenmoser


B. Giese


F. Näf

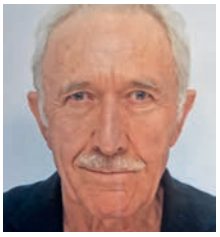

A. Merbach


M. Schneider


R. Tabacchi


H. Maag


M. Parinello


M. Wolfensberger


A. Ammann


H.-J. Ammann


B. Bernet


W. Craig


A. Kümin


H. Melzer


K. Oertle


A. Pfenninger


V. Rasetti


U. von Arx


A. Williams

A Warm Welcome to Our New Members!

Period: 15.11.2019–27.01.2020
Pardis Adams, Zurich - Kevin Antien, Basel - Mahdi Assari, Geneva - Muhammad Athar, Zurich - Kenneth Atz, Zurich - Syeda Rabia Batool, Zurich - Ana Isabel Benítez Mateos, Bern - Viacheslav Bolnykh, Lausanne - Véronique Breguet Mercier, Fribourg - Ksenia Briling, Lausanne - Joshua Csucker, Zurich - Federico Dapiaggi, Sisseln - Martina De Pascale, Basel - Dmitry Dirin, Zurich - Laura Esteban Hofer, Zurich - Gabriele Alessandro Fontana, Zurich - Simone Gallarati, Lausanne - Lucia Gallego Aibar, Zurich - Romain Gambert, Basel - Marc Hamilton Garner, Lausanne - Stefania Gianolio, Bern - Dominic Guggisberg, Zurich - Sevan Habeshian, Lausanne - Eimear Hegarty, Bern - Jutta Hellstern, Basel - Stefan Höger, Witterswil - Sabrina Huber, Zurich - Katherine Hurley, Zurich - Tamar Kohn, Lausanne - Anton Kudashev, Basel - Robin Lefevre, Zurich - Mo Li, Sion - Qinglong Liu, Basel - Paolo Lubini, Savosa - Valentina Marchini, Bern - Danylo Matselyukh, Zurich - Kenji Namoto, Basel - Wenzhe Niu, Zurich - Faruk Okur, Zurich - Remi Patouret, Geneva - Hippolyte Personne, Bern - Dimanthi Pliatsika, Wädenswil - Nikolai Püllen, Zurich - Antonio Ricci, Basel - Daniel Ricklin, Basel - David Roura Padrosa, Bern - Irene Sacco, Bern - Michael Sahre, Basel - Stefan Salentinig, Fribourg - Emma Sandell, Zurich - Céline Schuppisser, Bern - Mischa Schüttel, Lausanne - Erin Service, Zurich - Inga Shchelik, Zurich - Yevhen Shynkarenko, Duebendorf - Patrick Steinegger, Villigen PSI - Christoph Strasser, Dottikon - Matthias Tinzl, Zurich - Stefania Vergura, Basel - Victoria von Glasenapp, Geneva - Oleksandr Vyhivskyi, Basel - Xianwei Wang, Geneva - Dawn Williams, Witterswil - Giann Wiprächtiger, Zurich - Wooseok Yang, Zurich - Jie Zhang, Sion.

HONORS, AWARDS, APPOINTMENTS

METAS Price 2020 awarded to Kamyar Mehrabir, ETH Zurich

The Swiss Chemical Society awards the METAS Price 2020 to ***Mr. Kamyar Mehrabir***, ETH Zurich (Trace Element and Micro Analysis), for his work on online micro-droplet calibration method for sp-ICP-TOF to eliminate matrix effect in nanoparticles. We are convinced that this innovative and sound approach will have a significant impact on future applications of metrological principles in mass spectrometry of nanoparticles.

The Prize will be awarded on the occasion of the CHanalysis 2020, which takes place on May 7-8, 2020 at Hotel Dorint in Beatenberg.

scg.ch/metas-award

Four Chemists Appointed as New Individual Members of the Swiss Academy of Technical Sciences

As per January 1, 2020, The Swiss Academy of Technical Sciences (SATW) appointed 15 new individual members, whereof 4 scientists from the chemical and pharmaceutical sciences. SCS likes to congraulate its member to this honor.

Prof. em. Beat Ernst wird zum Einzelmitglied der SATW ernannt in Anerkennung für seine ausgezeichneten Forschungs- und Ausbildungskonzepte in der pharmazeutischen Chemie auf dem Gebiet der Glykomimetika, Glykobiologie und ihrer pharmakologischen Wirkung.

Prof. Katharina Fromm wird zum Einzelmitglied der SATW ernannt in Anerkennung für ihren ausserordentlichen Beitrag in der Forschung und der Förderung Jugendlicher und ihres grossen Engagements, den Nutzen der Technik einer breiten Öffentlichkeit zu vermitteln.

Prof. Greta R. Patzke wird zum Einzelmitglied der SATW ernannt in Anerkennung ihrer ausserordentlichen Leistungen auf dem Gebiet der nachhaltigen, bio-inspirierten Molekularkatalyse für die künstliche Photosynthese und zur Bekämpfung von antimikrobiellen Resistenzen.

Prof. Andreas Züttel wird zum Einzelmitglied der SATW ernannt in Anerkennung für seine ausserordentlichen Beiträge zu alternativen Energiespeichern und zur Elektromobilität und die Koordination der Wasserstofftechnologie in der Schweiz.

Source: *satw.ch*

Xile Hu, EPFL Lausanne, wins International Catalysis Award

Prof. Xile Hu from the EPFL Lausanne has won the 2020 International Catalysis Award from the International Association of Catalysis Societies.

Every four years, IACS award the International Catalysis Award, "to recognize and encourage individual contributions by a young person in the field of catalysis." Examples of such contributions include significantly improving a catalytic process or making an important contribution to the understanding of catalytic phenomena.

Xile Hu is the founder and director of the Laboratory of Inorganic Synthesis and Catalysis, where his research focuses on developing catalysts made of earth-abundant elements for chemical transformations related to synthesis, energy, and sustainability. Professor Hu is specifically awarded "for the creative and high-impact work in combining material development, electrochemistry and concepts of homogeneous catalysis for the production of solar fuels».

Source: *actu.epfl.ch/news*

Prof. Ruth Signorell, ETH Zurich, receives the Humboldt Award

For her outstanding achievements in research and teaching, ***Prof. Ruth Signorell*** has won the Humboldt Research Award of the Alexander von Humboldt Foundation. The award honours researchers whose work has had a lasting impact on their own discipline. In addition, the award winners get the possibility to carry out a project of their choice in cooperation with colleagues in Germany.

Source: *chab.ethz.ch*

IBA Yeager Award 2020 for Prof. Novak, ETH Zurich

Prof. Petr Novak receives the Yeager Award 2020 from the International Battery Association (IBA) for his outstanding contributions to the field of electrochemical energy conversion and storage. The award will be presented to him a the 2020 IBA Annual Meeting in March in Bled, Slovenia where he is invited to give the award plenary talk.

Source: *chab.ethz.ch*

Prof. Dario Neri, ETH Zurich, is winner of a 2019 World ADC Award

Prof. Dario Neri wins the World ADC Award 2019 in the category "Individual Input to the Field 2018". The awards recognize innovation, leadership, and devotion to antibody-drug conjugate research. Across nine categories the World ADC Awards showcase extraordinary endeavors, teamwork, and commercial acumen that has propelled the field to the forefront of cancer research today.
Source: *chab.ethz.ch*
worldadc-awards.com

Prof. em. Michael Allan, University of Fribourg, awarded the 2020 Will Allis prize of the APS!

Prof. Emeritus Michael Allan was recently awarded "the 2020 Will Allis Prize of the American Physical Society" for his contributions to the field of electron-driven physics and chemistry, that is, to the field of electron-atom and electron-molecule collisions, particularly studies of resonance and threshold effects in inelastic electron scattering and dissociative electron attachment processes.
Source: *unifr.ch/chem*

Prof. Clémence Corminboeuf, EPFL wins the Prix Jaubert 2020 from the University of Geneva

Félicitations au ***Prof. Clémence Corminboeuf***, Laboratoire de design moléculaire computationnel, EPFL, qui a reçu le Prix Jaubert 2020 de l'Université de Genève lors des Geneva Chemistry and Biochemistry Days. Le prix récompense les travaux marquants d'un ou d'une chimiste orientés vers le mieux-être de l'humanité. Il s'agit de la plus haute distinction décernée aux anciens étudiants de l'Université de Genève.
Source: *unige.ch/sciences/chimie*

Netherlands Scholar Award for Supramolecular Chemistry goes to Prof. Helma Wennemers, ETH Zurich

Prof. Helma Wennemers, Professor at the Laboratory of Organic Chemistry at ETH Zurich, has won this year's Netherlands Scholar Award for Supramolecular Chemistry. She got the award for her work on the rational design and development of peptide-based asymmetric catalysts and bioinspired molecular scaffolds for applications in supramolecular and biological chemistry.
Source: *chab.ethz.ch*

FET Open Grant for Prof. Helma Wennemers and her team form ETH Zurich

An international consortium of researchers shall create a new type of chemical reactor for molecular synthesis that is inspired by living cells. The project is part of the Horizon 2020 Programme and is funded by a FET Open Grant, which supports research on novel ideas for future technologies. ***Prof. Helma Wennemers*** and her team are part of the FET Open Grant and join the project as one of the five participating research groups.
Source: *chab.ethz.ch*

Pablo Rivera Fuentes, EPFL Lausanne, awarded a SNSF Eccellenza Grant

Prof. Rivera Fuentes has been awarded a Swiss National Science Foundation Eccellenza (SNSF) Grant for his project "Chemical probes to control redox biology with subcellular precision".

Pablo Rivera Fuentes is, since August 2019, a Tenure-Track Assistant Professor of chemical biology at the Laboratory of Chemical and Biological Probes (LOCBP) of EPFL. His main interests are focused on the development of targeted photoactivatable probes, on fluorescent sensing of epigenetic modifications and on the development of photoswitchable dyes for high-resolution imaging.
Source: *actu.epfl.ch/news*

ERC Consolidator Grant for Prof. Dennis Gillingham, University of Basel

Prof. Dennis Gillingham receives one of the coveted ERC Consolidator Grants from the European Research Council (ERC).

In his research project, Prof. Dennis Gillingham studies how small molecules can take advantage of the genomic instability of cancer.

Genomic instability is a hallmark of cancer because it provides the means for rapid evolution. However, this very instability also creates unique vulnerabilities in cancer that can be exploited. The ERC project proposes to create small molecules that can infiltrate and reprogram signaling events that occur around sites of DNA damage or when DNA replication stalls. Such events occur frequently in genetically unstable cells, therefore this approach should deliver selectively toxic molecules that may be relevant for the development of new therapeutics. Gillingham`s project is funded with 1.9 Million Euros over five years.
Source: *chemie.unibas.ch*

Geneva Chemistry & Biochemistry Days: Three SCS Prizes awarded to promising young scientists

SCS and the University of Geneva are happy and proud to announce the three awardees of the SCS Prize for the best oral presentations at the Geneva Chemistry and Biochemistry Days that took place from January 16-17, 2020.

Karolina Strakova, PhD student in the team of Prof. Stefan Matile, was award the SCS Prize for the best oral presentation and the LS2-SCNAT Prize of the best oral presentation in Life Science. Karolina gave a talk about her research on «Fluorescent probes to image physical forces in living cells».

Alexander Aster, PhD student in the team of Prof. Eric Vauthey, and ***Dalu Chang***, PhD student in the team of Prof. Nicolas Winssinger got the runner-up prizes for their presentations.

Source: *scg.ch*

JOURNAL NEWS

Helvetica, Volume 102, Issue 12, December 2019

Editorial
Introduction for the Special Collection of Papers in the Honor of Philippe Renaud
Emmanuel Lacôte

Communications
Increased Affinity of 2'-*O*-(2-Methoxyethyl)-Modified Oligonucleotides to RNA through Conjugation of Spermine at Cytidines
Elodie Decuypere, Anastasia Lepikhina, François Halloy, Jonathan Hall

Diastereoselective Hydroxyethylation of *ß*-Hydroxyketones: A *Reformatsky* Cyclization-Lactone Reduction Cascade Mediated by SmI_2–H_2O
Monserrat H. Garduño-Castro, David J. Procter

N-Silylation of Amines Mediated by Et_3SiH/KO^tBu
Fabrizio Palumbo, Simon Rohrbach, Tell Tuttle, John A. Murphy

Full Papers
Asymmetric Synthesis of 2,3-Disubstituted Cyclic Ketones by Enantioselective Conjugate Radical Additions
Sukanya Nad, Mukund P. Sibi

Unprecedented Nucleophilic Attack of Piperidine on the Electron Acceptor during the Synthesis of Push-Pull Dyes by a *Knoevenagel* Reaction
Corentin Pigot, Guillaume Noirbent, Sébastien Peralta, Sylvain Duval, Malek Nechab, Didier Gigmes, Frédéric Dumur

A Phosphorus(III)-Mediated (4+1)-Cycloaddition of 1,2-Dicarbonyls and Aza-o-Quinone Methides to Access 2,3-Dihydroindoles
Kaitlyn E. Eckert, Antonio J. Lepore, Brandon L. Ashfeld

Helvetica, Volume 103, Issue 1, January 2020

Communications
Towards Visible-Light Photocatalytic Reduction of Hypercoordinated Silicon Species
Etienne Levernier, Christophe Lévêque, Etienne Derat, Louis Fensterbank, Cyril Ollivier

Full Papers
Photocontrolled Release of the Anticancer Drug Chlorambucil with Caged Harmonic Nanoparticles
Jérémy Vuilleumier, Geoffrey Gaulier, Raphaël De Matos, Yannick Mugnier, Gabriel Campargue, Jean-Pierre Wolf, Luigi Bonacina, Sandrine Gerber-Lemaire

Keteniminium Salts as Key Intermediates for the Efficient Synthesis of 3-Amino-Indoles and -Benzofurans
Dylan Dagoneau, Amandine Kolleth, Pierre Quinodoz, Gamze Tanriver, Saron Catak, Alexandre Lumbroso, Sarah Sulzer-Mosse, Alain De Mesmaeker

Caprin-1 Promotes Cellular Uptake of Nucleic Acids with Backbone and Sequence Discrimination
Valentina Galli, Kalyan K. Sadhu, Daniela Masi, Jacques Saarbach, Aurélien Roux, Nicolas Winssinger

onlinelibrary.wiley.com/journal/15222675/

INDUSTRIAL NEWS

Source: *www.chemanager-online.com*

FTC Questions Sandoz-Aurobindo Deal Plans

November 22, 2019: Plans by Swiss drugmaker Novartis to sell $1 billion worth of assets belonging to its Sandoz generics subsidiary to India's Aurobindo Pharma may run afoul of the US Federal Trade Commission (FTC). In any case, it looks assured that any deal will be delayed beyond the prospective 2019 closure. The FTC has requested more information on a lawsuit against Aurobindo, India's Economic Times said, thus forcing the two companies to delay the transaction, which if successful would make Aurbindo the leading US generics producer in terms of sales, behind Israeli giant Teva. The earliest possible date for the divestment is February 2020, the newspaper reported, quoting an anonymous executive of the Indian drugmaker. Novartis CEO Vas Narasimhan has already acknowledged that the FTC has asked for more information related to the deal, which involves some Sandoz dermatology products and some of its business. Particulars of the FTC's request have not been revealed; however, US pharma trade journal Fierce Pharma pointed to a lawsuit filed in May of this year, in which 44 states, led by Connecticut, accused 20 generics producers of price fixing. The lawsuit accuses Teva of orchestrating a scheme with the other companies to divide up the generics market to prevent drug prices from dropping or simply to inflate them. This was the second lawsuit of its kind after an initial case filed in late 2016, also by the Connecticut attorney general's office. Both Sandoz and Aurobindo are said to be named in the updated lawsuit. Aurobindo had agreed to pay Novartis $900 million upfront for the assets. The deal was to include 300 marketed products and some development projects as well as three manufacturing facilities in Wilson, North Carolina, and Hicksville and Melville, New York.

Novartis to Acquire US Cholesterol Drug Specialist

November 25, 2019: Swiss drugmaker Novartis announced on Nov. 24 that it plans to buy biopharmaceuticals producer The Medicines Company for $9.7 billion, confirming a Wall Street Journal report published a day earlier putting earlier putting the price at The Medicines Company is a major US-headquartered producer of cholesterol drugs, and the New Jersey-based drugmaker's leading product inclisiran is regarded a potentially transformational investigational cholesterol-lowering therapy that re-imagines the treatment of atherosclerotic heart disease and inherited familial hypercholesterolemia. Based on a relatively new RNA interference technology with the ability to turn off genes that play a role in a disease, inclisiran had successful results in late-stage clinical trials, with the latest set of positive results announced last week. Novartis' offer of $85 per share as part of an all-cash deal for the drugmaker represents a premium of 24% over its closing price on Nov.22, but reports said the acquisition could potentially hand Novartis a market of 50 million patients worldwide. In particular, analysts said, the acquisition would help Novartis, which has a market value of more than $200 billion, add strength in a corner of the healthcare market it is already targeting with drugs including its heart-failure treatment Entresto. "With tens of millions of patients at higher risk of cardiovascular events from high LDL cholesterol, we believe that inclisiran could contribute significantly to improved patient outcomes and help healthcare systems address the leading global cause of death," said Novartis' CEO Vas Narasimhan. The CEO said the prospect of bringing inclisiran to patients also fits with Novartis' overall strategy to transform itself into a focused medicines company and adds an investigational therapy with the potential to be a significant driver of its medium to long term growth.

BASF's Construction Chemicals to Lone Star?

November 29, 2019: BASF is in exclusive talks on the sale of its construction chemicals business with private equity firm Lone Star, according to news agency reports, which said a deal could value the business at about €3 billion. Lone Star beat out a rival consortium that included Cinven and Bain Capital, people close to the matter told Reuters, which also said BASF has confirmed it is talking with only one bidder. Neither BASF nor Lone Star has confirmed the talks. The German giant kicked off the sale process in January but has failed to attract an industry buyer. BASF had initially hoped to sell the business to Swiss cement maker LafargeHolcim, but the two could not agree terms. Reports said LafargeHolcim considered the asking price too high. BASF bought the construction chemicals business from Degussa in 2006 for €2.7 billion, including €500 million of debt. The business supplies mortars and cement additives, as well as waterproofing materials and sealants under the Master Builders brand.

Clariant Partners PAT on Cosmetic Ingredients

December 2, 2019: Clariant has formed a strategic partnership with Plant Advanced Technologies (PAT), which will see the Swiss group take a stake of around 10% in the French plant biotech company. Financial terms were not disclosed. The venture will combine PAT's research strengths in discovering and producing compounds from plant roots with Clariant's expertise in claim substantiation, marketing and sales. "We are excited to further improve our offer to the personal care market through this new investment that reflects Clariant's on-going commitment to a more sustainable industry," said Hans Bohnen, member of Clariant's executive committee. "The partnership with PAT drives this commitment further and will provide our customers with best choices in the field of active ingredients." PAT develops plant-based rare active ingredients for the cosmetics, pharmaceutical and agrochemicals markets. The company has two proprietary technologies – plant milking (extraction) and target binding. Its plant milking technology allows plant cultivation in aeroponic and optimized conditions. Harvesting occurs several times a year and the plants are not destroyed: the roots can regrow almost indefinitely. PAT said more concentrated and more active extracts are produced through plant stimulation and gentle living-root exudation, while preserving the plants. The target binding technology identifies the active compounds in complex mixtures. It does this by finding the ligands that bind to the protein targets of interest, such as enzymes. PAT said it developed the technology as a "quick and easy" alternative to the "time-consuming and laborious" bioassay-guided fractionation. Christian Vang, global head of Clariant's business unit Industrial & Consumer Care, added that the deal with PAT complements its other partnerships and enhances its portfolio with "powerful, traceable and more sustainable offerings. "We will provide premium active ingredients to the cosmetic market through a monitored and controlled process that explores the most difficult-to-access and richest parts of plants: the roots," he said.

Made in Switzerland – Exported Worldwide

December 6, 2019: The chemical, pharmaceutical and life sciences industries in Switzerland – organized in the Scienceindustries trade association – account for 45% of total exports with around 70,000 employees and are thus the undisputed largest export industry in Switzerland. The members of Scienceindustries generate 98% of their turnover in international competition. Approximately half of their exports go to the EU. As a small nation, Switzerland is therefore dependent on good economic relations with the EU and countries from all over the world Switzerland enjoys an excellent reputation worldwide as a chemical and pharmaceutical location. Basel and thus northwestern Switzerland, where traditional groups such as Roche and Novartis have their headquarters, are of international importance as locations. With Sika, Bayer, Pfizer and Vifor Pharma, the economic metropolis of Zurich is just as well positioned as the Mittelland canton of Aargau with its numerous production sites for the agrochemical and pharmaceutical industries. Central Switzerland, with the cantons of Zug and Lucerne, is also home to international companies such as AstraZeneca, Biogen, Jansen, MSD, Roche Diagnostics and Shire. The canton of Valais with Syngenta and Lonza is also important. In particular, Lonza and other companies in the Valais produce chemical ingredients for pharmaceutical production. The Bassin Lémanique with the cantons of Geneva and Vaud and the companies Firmenich and Givaudan have also become an integral part of the international life sciences map. The chemical-pharmaceutical industry has a great demand for highly qualified personnel due to its lively research and development activities and is therefore dependent on access to the international labor market. The Agreement on the Free Movement of Persons as part of Switzerland's bilateral agreements with the EU secures Switzerland's access to European professionals. In addition, Switzerland's proximity to the world's leading universities, ETH Zurich and EPF Lausanne, as well as stable political conditions, are of great importance for its attractiveness as a globally important chemical, pharmaceutical and life science location.

Key Success Factor: Bilateral Agreements with the EU

Switzerland is a first-rate export nation. With 45% of the exports from Switzerland, the chemical and pharmaceutical industry is the largest exporter and thus a central pillar of the Swiss economy. In 2018, the chemical, pharmaceutical and life sciences industries alone exported products worth around 104 billion Swiss francs to the whole world, around 50% of which was supplied to the EU. The bilateral agreements are a prerequisite for regulated access to the EU internal market and thus an important location factor for international companies in Switzerland. In addition to the Agreement on the Free Movement of

Persons, the Bilateral Agreements I include the five market access agreements, which make unhindered market access possible in the first place. These existing agreements are therefore an important location factor for research-intensive, export-oriented Swiss companies. The agreements with the EU also closely link Germany and Switzerland economically. Germany is by far Switzerland's largest trading partner, ahead of the USA. The economic importance of Switzerland for German foreign trade is also significant, with Switzerland ranking 9th in exports and 8th in imports in the ranking of Germany's most important trading partners. Outside the European domestic market, Switzerland is surpassed only by the USA and China In terms of Switzerland's chemical and pharmaceutical industry, Germany is the second most important customer country. In 2018, goods worth 16.6 billion Swiss francs were exported to our neighboring country. A quarter of the imports for our industry come from Germany. Our northern neighbor also benefits considerably from the bilateral agreements with Switzerland. Therefore, it should also be in Germany's interest to increase its efforts within the EU to maintain the bilateral path with Switzerland. Scienceindustries for its part consistently supports the Federal Council's proposal for an institutional framework agreement with the EU, which should guarantee more efficient application of the agreements in the area of market access.

Protection of Intellectual Property is Essential

In addition to secure relations with the EU, an expansion of cooperation with other regions of the world through free trade agreements – especially with the USA and Mercosur – is essential for the future success of the chemical and pharmaceutical industry in Switzerland. The recognition and application of the international TRIPS protection standards for the protection of intellectual property is mandatory for the research-oriented industry. The chemical, pharmaceutical and life sciences industries welcome the free trade agreement between EFTA and the common market of South America, the Mercosur states. The agreement enables the member companies of Scienceindustries to comprehensively reduce the tariffs of their products in the common market of the South. This includes Brazil, Argentina, Paraguay and Uruguay – Venezuela is currently suspended – and is a very interesting market with 290 million inhabitants. At the end of the transition period, 96% of existing Swiss exports to Mercosur will be duty-free in the chemical and pharmaceutical sectors.

Research and Innovation Help to Solve Current Challenges

Each year, the member companies of Scienceindustries contribute almost 40% to the private expenditure on research and development in Switzerland, i. e. more than 6 billion Swiss francs each year. In discussions in Switzerland and throughout Europe, however, we have noticed a crumbling acceptance of scientific findings in broad sections of society. The ongoing debates about new technologies and progress in general should not only take into account the real and supposed dangers and risks, but also the benefits and opportunities of these new technologies. A general zero-risk attitude is the death of all progress. Restrictions or even prohibitions are the wrong way for an open society. In the field of plant protection products, for example, research can make an important contribution to a more sustainable approach to the environment. By investing in research, our member companies in the agricultural sector promote the development of sustainable and gentle active ingredients for crop protection.

Society and Industry Dealing with the Environment

The climate debate has gained importance in Switzerland, as in many other countries worldwide, over the past year. This public discussion on climate change dominated the national parliamentary elections in Switzerland in autumn 2019 and led to a historic victory for the ecologically oriented parties. However, sustainable management has long been a matter of course for our global industry. Since 1991, the chemical and pharmaceutical industry has voluntarily committed itself to the "Responsible Care" global initiative to ensure the safe and sustainable handling of its products throughout their entire life cycle. In Switzerland, Scienceindustries is actively committed to compliance with these global Responsible Care principles. Consequently, Scienceindustries supports the agreement to link the Swiss emissions trading system EHS with that of the EU. The target agreement to exempt the CO2 tax has proven to be a successful model. Companies in the target agreement system often significantly exceed their emission reduction targets: since 1990, Swiss EHS companies have achieved a 14% reduction in greenhouse gases. These reductions represent a significant contribution to achieving Switzerland's emission reduction target by 2020. For this reason, the target agreements should in future also be open to all companies outside the emissions trading system. Scienceindustries is committed to making the targets more flexible at home and abroad, because reduction measures and the corresponding investments in their own operations remain more attractive for industrial companies even if foreign measures are fully taken into account.

WEF's Global Competitiveness Index 2019

December 6, 2019: The results of the 2019 Global Competitiveness Index (GCI) reveal that, on average, most economies continue to be far from the competitiveness "frontier" – the aggregate ideal across all factors of competitiveness. Performance is also mixed across the 12 pillars of the index. The report demonstrates that 10 years on from the financial crisis, while central banks have injected nearly $10 trillion into the global economy, productivi-

ty-enhancing investments such as new infrastructure, R&D and skills development in the current and future workforce have been suboptimal. As monetary policies begin to run out of steam, it is crucial for economies to rely on fiscal policy, structural reforms and public incentives to allocate more resources towards the full range of factors of productivity to fully leverage the new opportunities provided by the Fourth Industrial Revolution.

Europe

Denmark (10) can already rely on a stable macroeconomic environment, widespread ICT adoption, modern skills and a robust labor market. An aspect where Denmark took a slight step backward in 2019 is innovation.

France (15) shows strengths in macroeconomic stability, health, infrastructure, financial system development and market size. It is an innovation hub but would benefit from a stronger entrepreneurial culture and a boost in ICT adoption.

Germany (7) boasts the world's best innovation capability. Other strengths include infrastructure, macroeconomic stability, market size, and health. However, the level of ICT adoption is relatively low.

Italy (30) has improved its financial system, access to finance to both SMEs and venture capital, ICT adoption and infrastructure. Its ability to innovate also remains competitive. Yet some bottlenecks, like high public debt, are still limiting Italy's potential.

The Netherlands (4) is the most competitive country in Europe. It receives high marks for macroeconomic stability and infrastructure quality. The country's innovation ecosystem benefits from a vibrant business dynamism and high innovation capability.

Switzerland (5) obtains the maximum score on the macroeconomic stability pillar and a near perfect score for infrastructure.

In addition, the country is one of the world's top three innovators. However, market efficiency and business dynamism could be improved.

Turkey (6) advances on ICT adoption, infrastructure and labor market pillars. On the other hand, Turkey's progress in this area is counterbalanced by a significant deterioration of its macroeconomic environment, driven mainly by higher inflation.

The strengths of the United Kingdom (9) include macroeconomic stability, infrastructure and financial system development. Business dynamism and innovation capability have weakened, and market efficiency has dropped sharply – a result of lower domestic competition and trade openness.

Eurasia

The macroeconomic environment of the Russian Federation (43) has improved substantially. In addition, it has enhanced its innovation capability which is also supported by increased ICT adoption. On the other hand, insufficient access to finance is limiting the competitiveness of Russian firms.

East Asia and Pacific

China (28) is by far the best performer among the BRICS economies, driven by the size of its market and macroeconomic stability. In several areas, China's performance is almost on par with OECD standards and it has been rapidly increasing its innovation capability. However, the country would benefit from a more intense competition and better allocation of resources.

Australia (16) features strengths that include macroeconomic stability, skills and financial system development. Its performance is largely in line with the OECD average.

Hong Kong SAR (3) is leading on four pillars: macroeconomic stability, health, financial system and product market. Furthermore, it ranks high on the infrastructure and ICT adoption pillars. Hong Kong's biggest weakness is its limited capability to innovate.

The main strengths of Indonesia (50) are its market size and macroeconomic stability. It boasts a vibrant business culture, a stable financial system and a high rate of technology adoption. Innovation capacity remains limited but is increasing.

Japan (6) is one of the most technology-savvy nations in the world and its financial sector is large, deep and stable. The country also benefits from its large market size. On the downside, risk aversion and rigid corporate culture undermine Japan's business dynamism and innovation capability.

The Republic of Korea (13) leads the world in ICT adoption and macroeconomic stability, and is one of the world's innovation hubs. The weakest aspect of Korea's performance is market inefficiencies, due primarily to the lack of domestic competition and high trade barriers.

Singapore leads this year's GCI 4.0 rankings. The country tops the infrastructure, health, labor market and financial system pillars, and achieves a nearly perfect score for macroeconomic stability. Performance in terms of market efficiency is driven by the fact that Singapore is the most open economy in the world.

South Asia

India (68) is among the low-performing BRICS countries. It ranks high on macroeconomic stability and market size, and its financial sector is relatively deep and stable. It performs well when it comes to innovation. ICT adoption is limited but has improved sharply, and product market efficiency is undermined by a lack of trade openness.

Middle East and North Africa

Israel (20) is an innovation hub and spends the most of any country on R&D. It can also rely on a highly educated workforce. Market efficiency suffers from a relative lack of competition and barriers to entry.

Saudi Arabia (36) continues to diversify its economy. ICT adoption and innovation capability are gradually improving. However, business dynamism is still limited by regulations that slow the entry and exit of new companies.

The United Arab Emirates (25) significantly improves on the ICT adoption and skills pillars, complementing the stable macroeconomic environment, sound product market and infrastructure. Further, the financial system is well-developed.

Sub-Saharan Africa

Mauritius (52), still the regional leader, is well-positioned in terms of institutional quality. It has further imroved its infrastructure and ICT adoption and is one of the most open countries in the world. However, the country's macroeconomic stability has slightly decreased.

South Africa (60) is a regional financial hub. It has also one of the most advanced transport infrastructures in the region and is among the top countries in Africa for market size. Its competitiveness is being held back by relatively low business dynamism.

Americas

Despite Argentina's (83) recent efforts to stabilize its economy, resurging inflation and increasing deficits have led to a less stable macroeconomic context. Resolving the duality of labor market and strengthening the financial system is high on Argentina's economic agenda.

The score of Brazil (71) has been driven mainly by a significant simplification of regulations to start and close a business and by lower inflation. In addition, it also benefits from a relatively high innovation capability and from the size of its market.

Canada's (14) economy has been hit by global trade tensions. However, it remains a competitive economy with very stable macroeconomic conditions and a sound financial system. Greater investments in R&D and collaboration between companies,

universities and research centers would improve Canada's competitiveness.

Chile (33) maintains a steady performance and leads the Latin America and Caribbean region. It can count on a stable macro-economic context, thanks to low inflation and low public debt, competitive and open markets and a strong financial system.

Mexico's (48) competitiveness performance is mixed, but at least it has achieved some progress on all its four lowest-ranked pillars: institutions, labor market, skills and ICT adoption.

The performance of the United States (2) in several pillars is affected this year. In particular, product market, domestic competition and trade openness rank lower than in 2018. Despite an overall weaker performance, the US is still an innovation powerhouse, boasting the second-largest market, and has one of the most dynamic financial systems in the world.

Innovative Chemistry Between Mountains and Lakes

December 9, 2019: Swiss chemical, pharmaceutical and life sciences companies help drive research around the world, and major players have research activities in the US, Singapore, Japan, as well as EU facilities in the United Kingdom and Germany. But do not underestimate the role of the domestic regional clusters and industrial sites. As outlined in the article by Scienceindustries on the previous pages, the chemical, pharmaceutical and biotech industry of Switzerland is characterized by specialized regional clusters industries. Pharmaceuticals companies that produce prescription and over-the-counter drugs are predominantly located in North-western (Basel) and Central Switzerland (Zug and Lucerne). Central Switzerland (Zug and Lucerne) is home to the diagnostics industry that manufactures healthcare products which aid physicians to diagnose diseases. Major players in the flavors and fragrances market which synthesize ingredients for manufacturing food, cosmetics and perfumes call the area around Lake Geneva in Western Switzerland their home base. Well-known manufacturers of vitamins used in manufacturing or pharmaceuticals, foodstuffs and animal feed are located in the Basel area, as are producers of crop protection agents such as herbicides, fungicides and insecticides including their active ingredients, primarily used in agriculture; the latter do also operate production sites in the canton of Valais in Southern Switzerland. The specialty and fine chemicals industry that is supplying intermediates and ingredients and providing tailored solutions involving intensive research and development to all the sectors mentioned so far is spread throughout Switzerland. The global annual demand for some of these specialties is often below a few metric tons, thus production sites can be located in more remote areas as the requirement to handle bulk logistics is less important than, for instance, the attractiveness of the region or life and labor conditions for skilled and highly qualified workers. An industry cluster of chemical and pharmaceutical companies focused on the life sciences sector can be found in the canton of Ticino. Located south of the Swiss Alps, Ticino is the Italian-speaking region of Switzerland. The canton's strategic geographic position represents a bridge between northern and southern Europe and between the dynamic economic areas of Lombardy in Northern Italy – with Milan at its heart – and the Basel-Zurich area in Northern Switzerland.

Basel Area: Reorganization of Industrial Locations

Effective December 31, 2018, Clariant sold the Infrapark Baselland and its activities at the Muttenz site to Magdeburg, Germany-based energy service provider GETEC. In addition, GETEC also acquired the production and infrastructure facilities of Novartis, located on the nearby Schweizerhalle site. While Clariant's industrial park was already spun-off into Infrapark Baselland, a legal entity, Novartis' industrial park business was just established via a carve-out as an initial step of the sales process. GETEC is now in a position to integrate and develop the two adjacent parks. The neighboring industrial parks east of Basel cover a total area of 51 ha, thus making the combined sites the biggest independent industrial park in Switzerland. The two sites house large Clariant and Novartis production facilities as well as manufacturing facilities of other well-known pharmaceutical and chemical companies such as Bayer and BASF. Recently, mid-October 2019, Novartis sold one of its chemical production facilities located on the Schweizerhalle site to Syngenta Crop Protection that will manufacture agrochemical active ingredients in the plant in the future. By selling the respective stakes to one professional operator, a new and diversified industrial park with economic significance for the entire region will be created. The objective of the transaction is to further increase the competitiveness of Infrapark Baselland as a chemical life science park and to create better growth opportunities for new companies operating on the site. In May 2019, Novartis sold its property in the Basel Klybeck area to Swiss real estate developer Central Real Estate Basel. The Klybeck chemical and life science production site covers approximately 30 ha and was jointly operated by Novartis and BASF as the remaining owners. The location with a unique heritage was the nucleus of the chemical industry in Basel and Switzerland. The Klybeck site hosted the headquarters of Ciba-Geigy, through whose merger with Sandoz in 1996, Novartis was created. With the sale to an experienced real estate developer, Novartis pushes forward the development of the area located close to the city center of Basel and enables to realize the "Klybeck Plus" project, a development initiative launched with the canton of Basel-Stadt. The goal is to establish an urban area that offers space for living, work, leisure and culture. The character of the site which is located in an urban area has changed fundamentally in the recent past: industrial and pharmaceutical production have lost their relevance, while laboratories and offices remained.

Pharmapark Zofingen: Small Yet Outstanding

Centrally located in the life science cluster of North-western Switzerland, the Pharmapark Siegfried in Zofingen may not be one of the largest, but it is certainly one of the most attractive pharmaceutical parks with a long tradition. Siegfried, founded in 1873, operated as a fully integrated research-based pharmaceutical company until 1991 and is a leading CMO partner for the global pharmaceutical sector today. Headquartered in the Pharmapark Zofingen, Siegfried operates nine production sites in six countries in total. The life science cluster of North-western Switzerland takes the lead worldwide. It represents a large reservoir of skilled and well-trained employees in the chemical and pharmaceutical industry, which is decisive for the success of every company operating in this field. In addition to Siegfried, two pharmaceutical companies, Celgene Chemicals and Elvetix Pharma, run a production facility at the Zofingen site. The cooperation is tailor-made and not subject to any fixed parameters. The individual needs of the Pharmapark companies are identified and met accordingly. Since April 2019, NovoMOF, one of the most observed and respected start-up companies in Switzerland active in the field of advanced materials with focus on metal-organic frameworks (MOFs), also produces at the Pharmapark Siegfried. Maintenance, repairs, issues concerning safety, health and environment, and security services at the site are taken care of by Bilfinger Industrial Services Schweiz. More than 50 Bilfinger staff members work at the Zofingen site. Supply and waste disposal is carried out by Primeo Industriecontracting, a subsidiary of Münchenstein-based Primeo Group. Primeo provides all utilities, such as power, gas, steam and pressurized air as well as resources such as water.

Visp: Expansion and Development into a High-tech Center

Founded in 1897 in the small Swiss town of Gampel in the canton of Valais, Lonza initially produced electricity used to manufacture chemicals such as calcium carbide. In 1909, Lonza moved to nearby Visp (photo on this page), where it started to transform itself from an electricity-generating through a chemical company to one of the world's leading suppliers to the pharmaceutical, healthcare and life science industries. Even today, the plant in Visp with a workforce of approx. 3,200 employees is still Lonza's largest site and one of the most significant for production and R&D. For the Life Science Ingredients division, the Visp site produces a number of chemical intermediates and ingredients – including some of Lonza's most established products, dating back to the first decades of the 20th century – for a broad range of end-applications, including pharmaceuticals, vitamins, nutrition products, agrochemicals, dyestuffs, adhesives, as well as for the electronics, aerospace and automotive industries. In the Custom Manufacturing division, the Visp site specializes in the production of microbial biopharmaceuticals, as well as in the production of regulated intermediates and active pharmaceutical ingredients (APIs), highly potent active pharmaceutical ingredients (HPAPIs), antibody drug conjugates (ADCs) and peptides for pharmaceutical applications. In July 2019, Lonza announced the start of an expansion to its bioconjugation facility in Visp. Building on 12 years of experience in the exacting bioconjugation space, Lonza's expansion will meet the development and manufacturing needs of pharma and biotech companies developing a new generation of therapies. The Swiss contract development and manufacturing organization (CDMO) is currently building a biopark at the Visp site for its Ibex Solutions-branded offerings. Ibex will be a campus of five state-of-the-art manufacturing complexes that provides biopharma customers with agile capability from late discovery to clinical and commercial manufacturing. The biopark will be built in a stepwise fashion. Two of the five 6-floor buildings are currently under construction and due for commissioning in mid-2020. The expansion that is part of Lonza's strategy to develop Visp into a leading high-tech center by 2030 will span the next two years. Bringing bioconjugates to market remains complex and Lonza is working at all stages of development and manufacturing. From 2020, all elements will be available at a single site through Ibex Solutions and the newly expanded HPAPI facility.

Ticino: Life Science Valley in the Heart of Europe

In Ticino the pharma industry plays an important role, and top-quality niche producers in the life sciences field located in the canton cover the entire pharma supply chain. The Farma Industria Ticino (FIT) association of chemical and pharmaceutical industries, founded in 1980, is a private organization that currently counts 31 member companies, with a combined workforce of 2,900 employees and a total annual turnover of approximately 1,7 billion Swiss francs. Activities of the associates range from preclinical and clinical drug development to chemical and formulation process development to industrial manufacturing of different classes of APIs and of a great variety of drug products forms. The vast majority of FIT companies also offer services such as contract research and manufacturing. Several investments accounting for almost 500 million Swiss francs have been realized by FIT member companies in Ticino in recent years, mainly in R&D and innovation. Ticino's biggest city, Lugano (photo on the opposite page), is home to Cerbios, a privately held company and FIT member and one of the three founding members of the Proveo alliance. The collaboration of Cerbios with AGC Biologics and Oncotec formed in 2015 provides efficient solutions to the market for the process development and manufacture of antibody drug conjugates (ADCs). Proveo combines industry experience and competencies with proven capabilities and the latest in technological innovation. The global collaboration that operates two more sites in Seattle, WA/USA, and Copenhagen, Denmark, respectively, will benefit from Cerbios' investments at the Lugano location. As announced earlier this year, the Swiss CDMO further invests in its high-potency API (HPAPI) manufacturing capacity. Following the completion of a new conjugation suite for ADCs a new HPAPI production line due in the second half of 2020 will enable Cerbios to accommodate larger volumes and batch sizes. These investments also benefit the Proveo alliance and help to develop the Lugano site into a hub that can cover the entire bioconjugation/monoclonal antibodies supply chain.

Novartis and Amazon Link on Supply Chain

December 13, 2019: Swiss drugmaker Novartis is partnering Amazon to "reimagine" its core manufacturing, supply chain and delivery operations. Under a multi-year collaboration, the two will establish Insight Centers, which aim to provide real-time visibility across the Swiss drugmaker's network of manufacturing operations and distribution centers using Amazon Web Services' (AWS) cloud infrastructure. AWS said the centers will enable the better forecasting and tracking of production lines, detect potential bottlenecks and recommend adjustments to improve accuracy. By using AWS' data capabilities, Novartis will be able to ramp up the production of personalized treatments for patients. The pharma company also intends to use AWS' Internet of Things services to augment and improve visual inspections of its manufacturing sites by generating images that can be analyzed using computer vision algorithms to monitor risks to production, such as unplanned downtime or delayed orders. "There is a lot we can learn from the AWS team, and while manufacturing is a great starting place, we're keen to also explore where else we can apply this technology," said Bertrand Bodson, chief digital officer at Novartis. "Using data science and digital technologies to reimagine the way we manufacture medicines is not only at the heart of our transformation, but also core to our ambition to bring innovative medicines to patients faster."

Clariant to Sell Masterbatch Arms to PolyOne

December 20, 2019: Swiss specialty chemicals producer Clariant has agreed to sell its masterbatch business to US plastics compounder PolyOne for altogether $1.56 billion in a debt-free deal. Important details of the plans were leaked by Bloomberg sources in October. The Swiss group, which counts as the global market's leading masterbatch producer, said the deal is set to close in the third quarter of 2020, following all regulatory approvals. Already a key player, the Clariant cemented its status as leader in the late 1990s when then-chemical major Hoechst merged its masterbatch assets, along with a number of other chemical product segments including pigments, into the Muttenz-headquartered producer and also took a substantial shareholding. For legal and organizatorial reasons, Clariant's masterbatch business, which comprises 46 production sites and technology centers employing around 3,600 people, will transfer to PolyOne in two separate transactions. In the first stage, its wholly owned global operations will be sold for $1.5 billion, around 12.2 times the EBITDA recorded in the twelve months up to the end of September 2019. In the second stage, the masterbatch business of Clariant Chemicals (India), in which the Swiss group holds the 51% majority, will be sold to the compounder for the equivalent of $60 million, or 17.3% times EBITDA taken in during the same 12-month period. The Indian company is listed on stock exchanges in the country. With the takeover of the Clariant assets, PolyOne – which puts the acquisition sum at $1.45 billion, 11 times EBITDA – will become a world leading supplier of color concentrates for plastics. The company said it intends to finance the purchase through a combination of cash on hand and proceeds from the issuance of senior unsecured notes, along with

about $450 million of equity. The Ohio-based US player is in the process of selling its PVC/PP Performance Products & Solutions (PP&S) business – which primarily supplies the North American construction and automotive industries – to South Korea's SK Capital Partners for an estimated $600 million in a transaction expected to close by the end of the year. The deal with PolyOne probably spells an end to Clariant's earlier plans for a high performance plastics joint venture with Saudi Arabia's Sabic, the Swiss group's leading shareholder with a stake of 24.99%. These plans were called into question in July, allegedly because of unfavorable market conditions. At the time, the companies said talks would resume when markets improved. However, commentators have at the time they did not see a basis for a joint venture if Clariant sold its masterbatch unit. With the masterbatch sale and the divestment of healthcare packaging business in October under its belt, the Swiss group plans to use the proceeds to sharpen its focus on its three core areas of care chemicals, catalysts and natural resources. Executive chairman and former CEO Harriolf Kottmann said he is "confident" that a divestment of the pigments business can be completed during 2020, as a step toward building the "new, more focused and stronger" Clariant by 2050.

DKSH Takes Australia's Axieo

January 6, 2020: Switzerland's DKSH has signed a contract to buy Axieo, a specialty chemicals distributor headquartered in Victoria, Australia, with an office also in Auckland, New Zealand. The acquisition boosts DKSH's geographical presence in the Pacific area for its Performance Materials business unit and also marks the Swiss group's entry into the region's agrochemicals markets. Axieo distributes specialty chemicals for various industrial applications as well as to the cosmetics, pharma and food & beverage industries. It employs 120 people and generates annual net sales of around 130 million Swiss francs. "By acquiring Axieo we actively drive forward market consolidation in the specialty chemicals industry in Asia Pacific. We are increasing our presence in the region to an extended customer base through our complementary portfolios and become a leading player in Australia and New Zealand," commented Thomas Sul and Natale Capri, co-heads for DKSH's Business Unit Performance Materials. Together with Monash University in Melbourne, Axieo also runs two innovation centers for industrial and life science products, developing formulations for both new and existing customers. DKSH said the addition of these two centers will take its innovation and formulation network to 46 facilities worldwide. The acquisition, which will be immediately earnings accretive for DKSH, is expected to complete during the first quarter of 2020, subject to certain conditions. Financial terms were not disclosed. Last month, DKSH also agreed to buy Crossmark, a field marketing provider in Australia and New Zealand. This transaction is also expected to close during the first quarter of 2020.

ChemChina and Sinochem Merge Agrochemicals

January 8, 2020: ChemChina and Sinochem are merging their agricultural assets into a new holding company named Syngenta Group, which will be based in Shanghai, China. The reorganization includes Swiss agrochemicals producer Syngenta, which ChemChina acquired in 2017, and Israeli crop protection company Adama, wholly owned by ChemChina since 2016. The two state-owned Chinese giants said the move aims to further deepen the reform of state-owned enterprises and optimize resource allocation and is also an important measure for Sinochem and ChemChina to further strengthen cooperation. Adama added that the newly formed group is expected to become the world's leading agricultural inputs company, spanning crop protection, seeds, fertilizers, additional agricultural and digital technologies, as well as a distribution network in China. Syngenta Group will reportedly have annual agrochemical sales of around $15 billion. Under the terms of the merger, ChemChina will transfer its 100% ownership in Swiss Syngenta as well as its 74.02% share in Adama to Syngenta Group, which will itself acquire Sinochem's primary agricultural assets. The new group, said Adama, will "further bolster the alignment between the companies and capitalize on the value creation and synergy opportunities identified." Adama will remain headquartered in Tel Aviv and maintain trading on the Shenzhen Stock Exchange. Frank Ning, currently chairman of both ChemChina and Sinochem, will chair Syngenta Group, while Adama's current CEO Chen Lichtenstein will be chief financial officer and relocate to Basel. Lichtenstein's successor at Adama will be Ignacio Dominguez, currently the firm's co-chief commercial officer. The board of Syngenta Group is appointing Erik Fyrwald – currently head of Swiss Syngenta as its CEO. Mark Patrick, Syngenta's current chief financial officer, will leave the company at the end of January. Reuters news agency reported in December that ChemChina had approached Chinese state-backed investors for funds of up to $10 billion for a reorganization of its agrochemicals business ahead of a stock market listing in 2020. The fundraising initiative and plans for a listing are said to be aimed at reducing ChemChina's debt. ChemChina wanted to list Syngenta, and possibly now Syngenta Group, on China's technology-focused STAR market in mid-2020, according to fundraising documents dated October 2019. Media reports have alluded to a potential merger between ChemChina and Sinochem for the past two-to-three years. Late in October 2019, the Financial Times said the companies were planning to abandon the mega deal because of challenges in combining the two management teams, although Reuters subsequently quoted Ning as denying this was the case.

Clariant Technology for China Ethanol JV

January 13, 2020: Clariant is supplying its sunliquid cellulosic ethanol technology to a proposed joint venture in China in which Chemtex Chemical Engineering and China's Anhui Guozhen Group plan to build a full-scale commercial plant to produce cellulosic ethanol from agricultural residues. The plant, with a planned capacity of 50,000 t/y, will be located at a greenfield site owned by the Chinese company in Fuyang, Anhui province, in eastern China. Output will serve China's regional fuels market as a blend into gasoline to fulfill the national blending mandate. A start-up date has not been disclosed although detailed evaluations and preparations for engineering are said to be well under way with project execution pending a final agreement of certain government contracts. There is an option to double the plant's capacity in a second phase, which according to Clariant would make it one of the largest in China so far. "For Clariant, China represents a core growth market where we want to further strengthen our position," said Hans Bohnen, chief operating officer." The country is aiming to achieve a 10% bioethanol content in transportation fuels nationwide in the next few years. These regulatory commitments offer substantial growth potential for our sunliquid technology by spurring demand for advanced biofuels." Li Wei, founder and chairman of Guozhen Group, added that the company intends to be a pioneer and invest in the first commercial cellulosic ethanol plant in China. The Anhui region is characterized by agriculture, which Clariant noted guarantees abundant feedstock of wheat straw and corn stover while also maximizing greenhouse gas savings. The Swiss group said cellulosic ethanol produced via its sunliquid technology saves around 95% of greenhouse gases compared to gasoline. Last September, Clariant signed a license deal for sunliquid technology with Poland's Orlen Poludnie. The agreement, the group's second for the process at the time, enables Orlen Poludnie to build a 25,000 t/y plant at Jedlicze in southeastern Poland. A first sunliquid license was signed in September 2017 with Slovakian bioethanol producer Enviral. The 50,000 t/y plant at Leopoldov was planned to be integrated into Enviral's existing facilities at the site. This year, Clariant is also due to pro-

duce first batches of product from its flagship sunliquid facility being built in southwest Romania. At full capacity, the 50,000 t/y ethanol plant will process around 250,000 t/y of wheat straw and other cereal straw sourced from local farmers.

Thiacloprid now Effectively Banned in the EU

January 14, 2020: The European Commission has announced it won't renew its approval for the nicotinoid pesticide (neonic) thiacloprid when the substance's license expires on Apr. 30, 2020. This move follows the agreement of a qualified majority of EU governments last October to add the chemical to the three other neonics – clothianidin, imidacloprid and thiametoxam –barred from usee outside of greenhouses on crops attractive to bees. The three last have been restricted since 2013. EU health commissioner Stella Kyriakides said there were environmental concerns related to the use of thiaclprid, particularly its impact on ground water; there were but also concerns about human health, including reproductive toxicity. Kyriakides called the decision "yet another clear demonstration of the Commission's commitment to protect the health of EU citizens and our environment, with evidence of this priority being the farm to fork strategy within the European Green Deal." The EU governing body based its assessment of thiachloprid on conclusions of an evaluation by the European Food Safety Agency (EFSA). The agency reviewed 1,500 studies on bee health that it said raised concerns not only about harm to foraging bees as well as to humans. Last autumn, EFSA held a public consultation related to an assessment of chronic effects on the thyroid system as well as acute effects on the nervous system. Both were the culmination of a multi-year collaboration between EFSA and the National Institute for Public Health and the Environment for the Netherlands (RIVM). With the Commission's action, Bayer's Calypso and Biscaya insecticides will be effectively banned throughout EU. The Leverkusen-based group, world's largest agrochemicals player since its takeover of Monsanto, as well as Swiss agrochemicals giant Syngenta, now owned by ChemChina, had pushed for a continued exemption.

France has already outlawed the four insecticide ingredients in all applications including greenhouses. The country has consistently been at the forefront of legislation to restrict chemical crop protectants such as glyphosate as well as ban the phosgene-based bisphenol A used to manufacture engineering plastics such as polycarbonate as well as epoxy resins. Within the EU, the UK has been slow to move against agricultural chemicals and in some cases has applied for exemption of its farmers from the restrictions. The country will presumably be outside the community when the new restrictions take effect.

Bayer's Vitravki Faces Pricing Hurdles

January 20, 2020: Bayer has run into difficulty with healthcare providers in England and Germany over the high cost of the German group's new "tissue-agnostic" cancer drug Vitrakvi, which was developed together with Loxo Oncology. Vitrakvi, also known by its generic name larotrectinib, is recommended for patients whose tumors feature a neurotrophic receptor tyrosine kinase (TRK) gene fusion. When a TRK gene fuses with another gene, this leads to increased proliferation of the tumor cells, and the drug aims to selectively block the corresponding signal pathway. The first TRK inhibitor to come out of a drugmaker's pipeline has been approved both by the US Food and Drug Administration (FDA) and the European Commission for patients with TRK fusion cancer across all solid tumors; however, it isn't clear whether it will actually be reimbursed, due to the high cost. In a 2018 filing with the US Securities and Exchange Commission, Loxo said the oral version of Vitrakvi would cost $32,800 a month before discounts. National Institute for Health and Care Excellence (NICE), which negotiates prices for the English arm of the UK's National Health Service (NHS), said Bayer is pricing the drug in England at £15,000 for a 30-day supply, whereby the health institute said it had been offered a "commercial arrangement" if the drug was recommended. Draft guidance published by NICE late last week said cost-effectiveness calculations for the expensive oncology medication are "very uncertain," especially as its benefit over existing treatment options is unknown. While Bayer has presented evidence to show that Vitravki can shrink NTRK gene fusion cancers, NICE – which estimates that around 600 to 700 patients in England suffer from this form of the disease – said it is "difficult to know how well it works because it has not been compared in the trials with other treatments." Germany's cost-effectiveness agency Institute for Quality and Efficiency in Healthcare, known by its German-language acronym IQWiG, has also rejected Vitravki. As it explained, the new inhibitor was approved for cases in which the disease is locally advanced or metastatic, and there are no other satisfactory treatment options but because these cases are so rare, the approval studies do not produce sufficient data. IQWiG pointed out that none of the three phase 1 and phase 2 studies conducted with the Bayer drug up to now has a comparator arm, which makes it very difficult to conduct an early benefit assessment. In the US market, first-past-the-post TRK inhibitor Vitrakvi now has a rival. In August 2019, the FDA approved Roche's Rozlytrek for the same indication. The Swiss pharma is reportedly pricing its treatment there at a discount to Vitravki.

China to Put Curbs on Single-use Plastics

January 21, 2020: China is following the lead of developed countries and economic blocs with plans to put curbs on production, sale and use of single-use plastic products, which are becoming a nightmare of gigantic proportions as vast amounts of untreated plastic waste cause landfills to overflow and rivers to choke on waste. The country's largest rubbish dump, which reports describe as being "the size of 100 football fields," is said to be already full, 25 years ahead of schedule, and China's Yangtze River thought to carry more plastic pollution into

the ocean than any other waterway worldwide. At the behest of China's national development and reform commission, the Ministry of Ecology and Environment on Jan. 19 issued an order banning non-biodegradable plastic bags in all of major cities by the end of 2020 and in all cities and towns by 2022. The rules will not apply to markets selling fresh produce until 2025. The announcement coincided with the opening of the World Economic Forum's annual conference in Davos, Switzerland. Also by the end of this year, restaurants across the People's Republic will be banned from using plastic straws, and the use of plastic utensils by takeaway food outlets and plastic courier packages phased out. By 2025, restaurants in all towns and cities have been ordered to cut consumption of single-use plastic items by 30% and hotels told to phase out free single-use plastic items by that date. Another ban to take effect over the next 12 months calls for an end to production throughout China of household chemicals containing plastic microbeads, with the sale of such products outlawed by the end of 2022. The new restrictions are being touted as the most wide-sweeping of the past decade. In 2008, the government prohibited free handouts of plastic bags at retail outlets and subsequently ordered production of ultra-thin plastic bags to cease. Beijing has acknowledged, however, that the regulations have not been consistently enforced. Plastic packaging for food and parcel deliveries, which were left unaddressed by the 2008 legislation, in the meantime have flourished so that these two sectors are coming under particular scrutiny. A Greenpeace report from November 2019 found that plastic waste from parcels was responsible for 93% of the 2018 growth in trash in the country's major cities. Some Chinese regional governments have already begun curbing the use of plastic products. Shanghai, notably, has asked local hotels to immediately cease handouts of toiletries packaged in plastic bottles, unless requested, and the southern tourist resort island of Hainan reportedly issued a ban on all plastic products last year. Restrictions on production and sale of other plastic products are allegedly in the works, though it is not yet clear which products and which parts of the country would be affected. It is also not clear which, if any, penalties for violations would be levied this time around. Struggling under its own crushing burden, China has been at the forefront of initiatives by Asian countries to stop imports of plastic waste from the developed world, in 2018 rejecting all shipments. The use of medical plastic waste in production of plastic products is said to have been banned as well. Figures published by the online platform Our World in Data show that China was the largest producer of plastics worldwide in 2010 – the last year for which official statistics are said to be available – with a volume of 60 million tonnes. The US was in second place with 38 million tonnes. In the recent past, the Chinese government has stepped up efforts at recycling its own waste, although figures for recycling are not widely available.

IMCD Buys Israeli Distributor

January 21, 2020: Following a busy acquisition program in the second half of last year, Dutch distributor IMCD has kicked off 2020 with another addition to its stable. This time, the Rotterdam-based group has bought Israel's Zifroni Chemical Suppliers. Financial terms were not disclosed. Based in Rishon Le-Zion, Zifroni distributes pharmaceutical, personal care and other specialty chemical ingredients in Israel. The company employs nine people and generated revenues of €10.2 million in 2019. "The acquisition of Zifroni is another important step in the globalization of our pharmaceutical business. Zifroni's strong position within the innovative Israeli market and extensive portfolio in pharmaceuticals and personal care, provides the perfect fit with IMCD," said John Robinson, IMCD business group director pharmaceuticals. Last month, IMCD completed two acquisitions, namely South Korea's Whawon Pharma and Switzerland's DCS Pharma. These were preceded by the purchases of Colombian ingredients distributor Unired Quimicas in November 2019, India's Monachem Additives in September and Matrix Ingredients in Singapore and Malaysia in August.

ECJ Advisor Says GSK Abused Position in Payoff

January 23, 2020: A senior advisor to the European Court of Justice (ECJ) has accused leading British drugmaker GlaxoSmithKline of misusing its market standing by paying generic competitors more than £50 million (€58.7 million) to delay launching alternatives to its antidepressant Seroxat after the drug's patent expired in 1999. In an expert opinion for the court, advocate-general Juliane Kokott suggested that pay-for-delay deals between drugmakers "may constitute a restriction of competition" and "may be an abuse of a dominant position." Judges should consider the long-term impact for consumers when reaching a ruling, she added. The ECJ is due to rule later this year on the GSK case. While Kokott's opinion is not legally binding, it is thought to carry weight and could likely influence the court ruling. According to the newspaper Financial Times, the advocate's opinion lends weight to an earlier penalty imposed by the UK's Competition and Markets Authority (CMA), which concluded in 2016 that the deals struck by GSK were anti-competitive. At that time, the drugmaker was fined £37.6 million, but GSK and the generic manufacturers challenged the decision at the UK's Competition Appeal Tribunal, which is now seeking guidance from the ECJ as to whether an agreement to settle a drug patent dispute may constitute a restriction of competition by object or effect. Against the backdrop of rising drug costs, the increasingly ubiquitous pay-for-delay arrangements in the drugs sector have come under increasing scrutiny. In particular, they have been criticized recently by US Democrats competing in the party's ongoing presidential primary. The European Commission has also criticized the practice – for several years, as the UK newspaper's research shows – blaming it for the low levels of competition in the European pharmaceutical market and a decline in innovation. In several cases, the Commission has taken action. French drugmaker Servier was fined €330 million and several generic drugmakers €97 million in 2014 for delaying the launch of perindopril, a generic medication to treat high blood pressure. Where the stakes were lower, the Commission in 2013 fined Johnson & Johnson of the US and Switzerland's Novartis together €16 million for delaying the market entry of generic painkiller fentanyl. That same year, Denmark's Lundbeck was fined €93.8 million, and several producers of generic medicines together paid €52.2 million for delaying the market entry of generic antidepressant citalopram. Despite the fines and the ruling in all three cases that the agreements had caused consumer harm by delaying generic entry and unduly maintaining high prices, the EU competition authority five years later reduced Servier's fine by €102.67m after the company appealed.