

Monthly Report

09/2020: +3.68%

YTD: +0.73%

Big Patent Data

Be among the first to invest in the innovation leaders

-  **Systematic & objective approach** - invest in companies with high-quality patent portfolios
-  **Scientifically proven quality indicators** for patent portfolio evaluation (basis: „Big Patent Data“)
-  **Worldwide investment universe** with focus on **Small and Mid Caps** (due to superior innovation/impact ratio)
-  Remarkable number of **takeovers** in the portfolio
-  Regional focus: **Europe, USA, Japan/Pacific**
-  **High degree of diversification** (~100 stocks in portfolio)

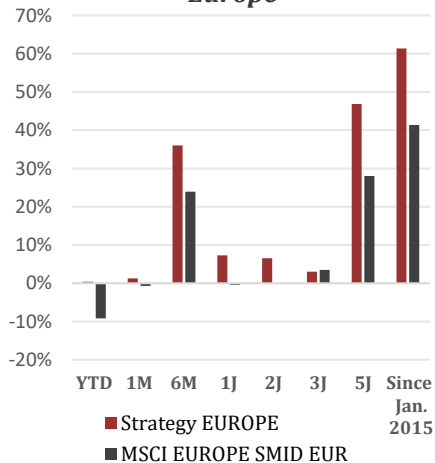
-  Possibility of multiple, **tailor-made** investment concepts:
 - Theme funds (specific *sectors* or *technology fields*)
 - Small and Micro-Caps
 - Regional focus
 - Identification of takeover candidates

Portfolio Performance (worldwide)

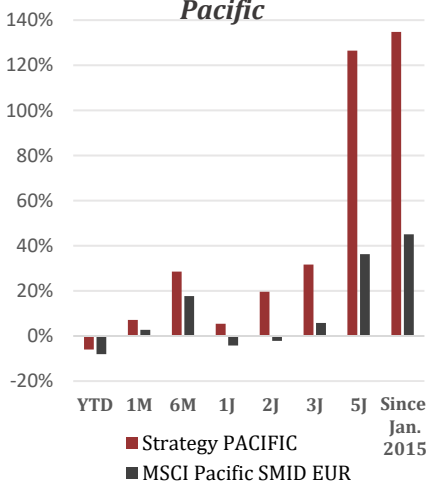


Regional Performance

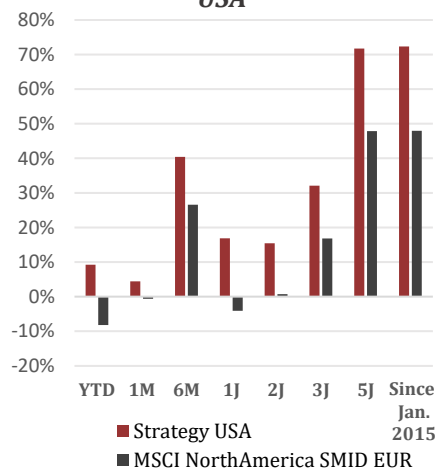
Europe



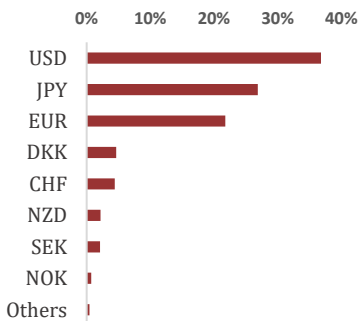
Pacific



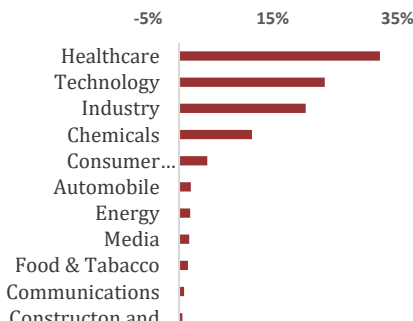
USA



Currencies



Sectors



Top Holdings



Innovator of the month



ImmunoGen Inc
Cancer Immunotherapy

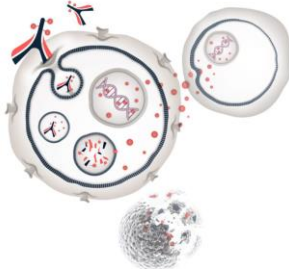
Cancer Research
Field of activity

€ 600 M
Market Cap

75
Staff

...70%
of those in R&D

> 1200
pub. active Patents



Last month, one of the TOP 3 positions in our portfolio - **Immunomedics Inc** - was **acquired by GILEAD Sciences** with a share price premium of more than 100%. We had significantly **increased our position** in this stock in early April following a 30% drop (due to production difficulties) after our healthcare consultant **BioScience Valuation confirmed our positive assessment**.

In this report, we introduce the biotech company **ImmunoGen Inc**, which operates in the same attractive research field as Immunomedics, but is still much smaller. A potential takeover target for GILEAD's competitors?

Fig.1: Mechanism of ADCs (www.Immunomedics.com)

The company was founded in 1980 by Baruj Benacerraf, who had just been granted the Nobel Prize for medicine, along with a few investors. Their vision was to develop a **more efficient and better tolerated cancer therapy**. As early as 1982, research was conducted on the 1st generation of **antibody-drug conjugates (ADCs)**. These molecular compounds are intended to **improve the targeting of cancer cells** (see Fig. 1) while preserving healthy ones, which are also attacked in classical chemotherapy.

Antibodies for targeted cancer therapies

Even though ImmunoGen has been active since the early 1980s, the peak of its patenting activity is far from reached: as shown in Figure 2, the **number of patent applications has increased continuously**. After almost 40 years of research, ImmunoGen displays a historically high level of patenting activity.

However, it is noticeable that the **almost linear increase** in applications is followed by a **significant decrease** in the ratio between grants and applications (**efficiency**) since 2004. It is important to consider though, that the applications of recent years can still be granted (it usually takes at least 3 years from an application to a possible grant).

Reasons for lower grant ratios could be **increased competition** in these technologies (a positive aspect, as it signals economic value) or reduced innovativeness (negative).

The company's technological orientation (distribution of patents in IPC main classes) clearly shows its focus on **monoclonal antibodies as modifiers against malignant tumors (antineoplastic)** - exactly what ADCs are! (Fig. 3)

- **A61K 47** Medicinal preparations characterized by the non-active ingredients used, e.g. carriers or inert additives; targeting or modifying agents chemically bound to the active ingredient
- **A61K 39** Medicinal preparations containing antigens or antibodies
- **A61P 35** Specific therapeutic activity of medicinal preparations - **antineoplastic agents**
- **C07K 16** Organic chemistry - peptides - immunoglobulins, e.g. monoclonal or polyclonal antibodies

Fig. 4 displays the **technological similarities** between ImmunoGen and Immunomedics, despite some differences in their focus (Immunomedics has, for example, additional emphasis on the technology class A61K 51 ("Medical preparations containing radioactive substances for therapy or in vivo testing")). Therefore, from a technological point of view, ImmunoGen could be an **alternative takeover candidate** for GILEAD's competitors that have also shown interest in Immunomedics.

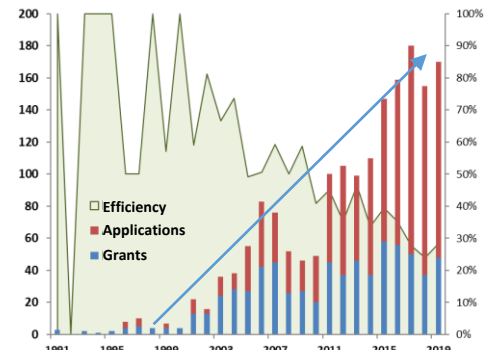


Fig.2: Patent applications sorted by date of publication

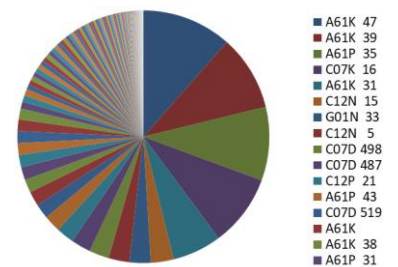


Fig.3: Technological distribution (IPC main groups)

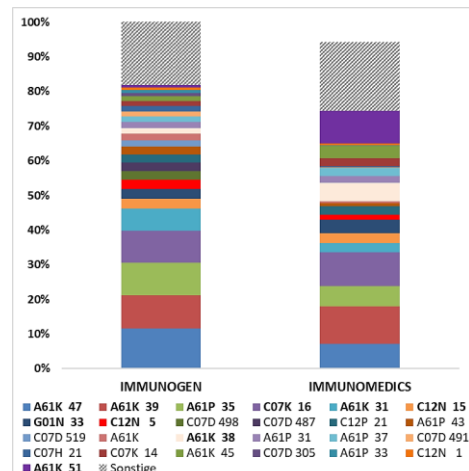


Fig.4: Technological similarities and differences

Innovator of the month

ImmunoGen Inc
Cancer Immunotherapy



This assessment is also supported by the dynamics of global patent applications in one of the company's major IPC subclasses (Fig. 5): A61K 47/68 - Medical Preparations - Modifiers chemically bound to the active ingredient, where the modifier is an antibody or fragment thereof. The worldwide patent applications show that this technology class is a **trend technology** with rapidly growing importance, in which ImmunoGen has positioned itself at an early stage. Other publicly listed companies active in this technology field include: Korean *Aprogen Pharma*, US-based *Magenta Therapeutics*, German *Heidelberg Pharma* and Canadian *Helix Biopharma*. The most important citers of ImmunoGen's patent portfolio are: *Biotest AG*, *Roche Holding AG*, *Schering Corp*, *Medarex Inc* and *Genentech Inc*. The last two were acquired by *Bristol Myers Squibb* and *Roche Holding* respectively. ImmunoGen is therefore **active in a technology field of interest to large pharmaceutical companies**.

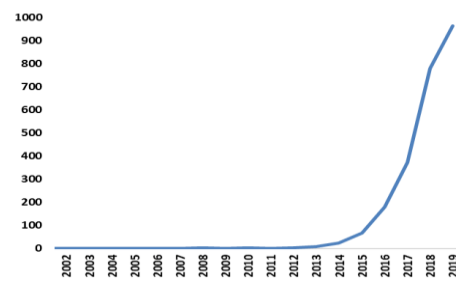


Fig.5: Global applications in IPC subgroup A61K 47/68

An attractive pipeline

The following information was provided by our cooperation partner **BioScience Valuation BSV GmbH**, an expert in evaluating success probabilities of projects and clinical trials in the **biotechnology and pharma sector**.

ImmunoGen is a clinical-stage biotechnology company focused on the development of novel antibody-drug conjugates (ADCs) that provide targeted therapies for the treatment of cancer.

ADCs are immunoconjugates comprised of a **monoclonal antibody** connected to a **cytotoxic drug** (known as the payload) via a chemical linker. The ADC is designed to selectively **deliver the ultra-toxic payload directly to the target cancer cells**. To date, seven ADCs have received market approval and over 100 are being investigated in various stages of clinical development. *Adcetris (Brentuximab)*, which is marketed by *Seattle Genetics* (in the US) and *Takeda Pharmaceuticals* (worldwide), achieved global sales of USD 1.1 billion in 2019 with an expected sales potential of more than USD 2.3 billion. *Kadcyla (Ado-Trastuzumab)* from *Genentech*, a subsidiary of *Roche*, achieved in 2019 sales of USD 1.4 billion with expected peak sales of over USD 2.5 billion.

Advantages of ADCs:

- ADCs combine the targeting abilities of monoclonal antibodies with the cytotoxic power of small molecule drugs
- High specificity to its target receptor
- Better efficacy with a lower dose
- Less side effects
- Wider therapeutic window

The company's pipeline product candidates include (Fig. 6):

- *Mirvetuximab Soravtansine* for the treatment of platinum-resistant ovarian cancer
- *IMGN632* for acute myeloid leukemia (AML) and blastic plasmacytoid dendritic cell neoplasm (BPDCN)
- *IMGC936* for solid tumors
- *IMGN151*, a next generation anti-FR α candidate in early-stage development

| COMPOUND | EARLY STAGE | PRECLINIAL | PHASE 1 | PHASE 2 | PHASE 3 |
|---|---|------------|---------|---------|---------|
| MIRVETUXIMAB SORAVTANSINE TARGET: FOLATE RECEPTOR ALPHA (FRA) | SORAYA: OVARIAN MONOTHERAPY (PIVOTAL TRIAL) | | | | |
| | MIRASOL: OVARIAN MONOTHERAPY (CONFIRMATORY TRIAL) | | | | |
| | FORWARD II: OVARIAN COMBO (DOUBLET) WITH BEVACIZUMAB | | | | |
| | FORWARD II: OVARIAN COMBO (TRIPLET) CARBOPLATIN & BEVACIZUMAB | | | | |
| IMGN632 TARGET: CD123 | BPDCN AND AML | | | | |
| IMGC936 TARGET: ADAM9 | MACROGENICS CO-DEVELOPMENT | | | | |
| IMGC151 TARGET: FRA | OVARIAN NEXT GENERATION | | | | |

Mirvetuximab, ImmunoGen's most advanced drug candidate, is currently in a **Phase III trial** (SORAYA) for patients with **platinum-resistant ovarian cancer**, an indication with a **high medical need**. Topline results are expected in Q3-2021, and, according to the majority of analysts, *Mirvetuximab* could be launched in 2022 if Phase III results are positive. Sales are expected to exceed USD 300 million in 2026.

Other ADC-developing companies that demonstrate the **economic potential of ADC therapies** include *Seattle Genetics* (market value: USD 34 billion) and *ADC Therapeutics* (USD 2.3 billion).

Fig.6: ImmunoGen's R&D Pipeline (www.immunogen.com/what-we-do/our-pipeline/)



Disclaimer

Dies ist eine Marketingmitteilung. Sie ist erstellt worden von der ARIAD Asset Management GmbH. Sie dient allein Informationszwecken und stellt insbesondere kein Angebot zum Kauf, Verkauf oder zur Zeichnung irgendeines Anlagetitels dar. Die vorstehenden Angaben beziehen sich ausschließlich auf den Zeitpunkt der Erstellung dieser Marketingunterlage. Alle Angaben über Performanceentwicklungen in den Regionen enthalten keine Gebühren. Eine Garantie für die Aktualität und fortgeltende Richtigkeit kann daher nicht gegeben werden. Historische Performance ist kein Garant für zukünftige Performance und der Wert eines Investments sowie die generierten Erträge können sowohl fallen als auch steigen. Zukünftige Renditen sind nicht garantiert und ein Totalverlust des Kapitals ist möglich. Interessierte Anleger sollten sich informieren und Rat bezüglich rechtlicher und steuerlicher Vorschriften einholen, die möglicherweise für die Zeichnung, den Kauf, das Halten, das Tauschen, die Rückgabe oder die Veräußerung entsprechender Vermögensanlagen relevant sein könnten. Aktuelle und vollständige Angaben zu einzelnen Fonds sind dem aktuellen Verkaufsprospekt und den wesentlichen Anlegerinformationen, ergänzt durch den jeweiligen letzten geprüften Jahresbericht und den jeweiligen Halbjahresbericht, zu entnehmen. Soweit Sie weitergehende Informationen oder eine anleger- und objektgerechte Beratung wünschen, empfehlen wir Ihnen, sich mit Ihrem Kundenberater in Verbindung zu setzen.

Diese Marketingunterlage und die in ihr enthaltenen Informationen dürfen nicht in den USA verbreitet werden. Die Weitergabe dieser Marketingunterlage an Dritte sowie die Erstellung von Kopien, ein Nachdruck oder sonstige Reproduktionen sind nur mit unserer vorherigen schriftlichen Zustimmung zulässig. Die ARIAD Asset Management GmbH ist in Deutschland als Finanzdienstleistungsinstitut zugelassen. Sie unterliegt der Aufsicht durch die Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin), Graurheindorfer Str. 108, 53117 Bonn.