

IDENTIFYING GLOBAL EXPERTISE IN CAR-T

Car-T cell therapy - a branch of immuno oncology research - holds great promise for cancer patients. Both Tisagenlecleucel (Kymriah) and Yescarta have had FDA approval for the treatment of children and young adults with acute lymphoblastic leukemia and patients with relapsed/refractory diffuse large B-cell lymphoma (r/rDLBCL) and other rare large B-cell lymphomas. Kymriah has also been approved by the FDA for the diffusion of large B-cell lymphoma.

There have also been some early disappointments with the news last month that Gilead revealed that it had canned its BCMA-targeting asset KITE-585, derived from the company's \$11.9bn takeover of Kite Pharma, adding the remarkable fact that this had prompted an \$820m write-off.¹

What this all shows is that the journey towards finding effective Car-T therapeutics will be long and arduous.

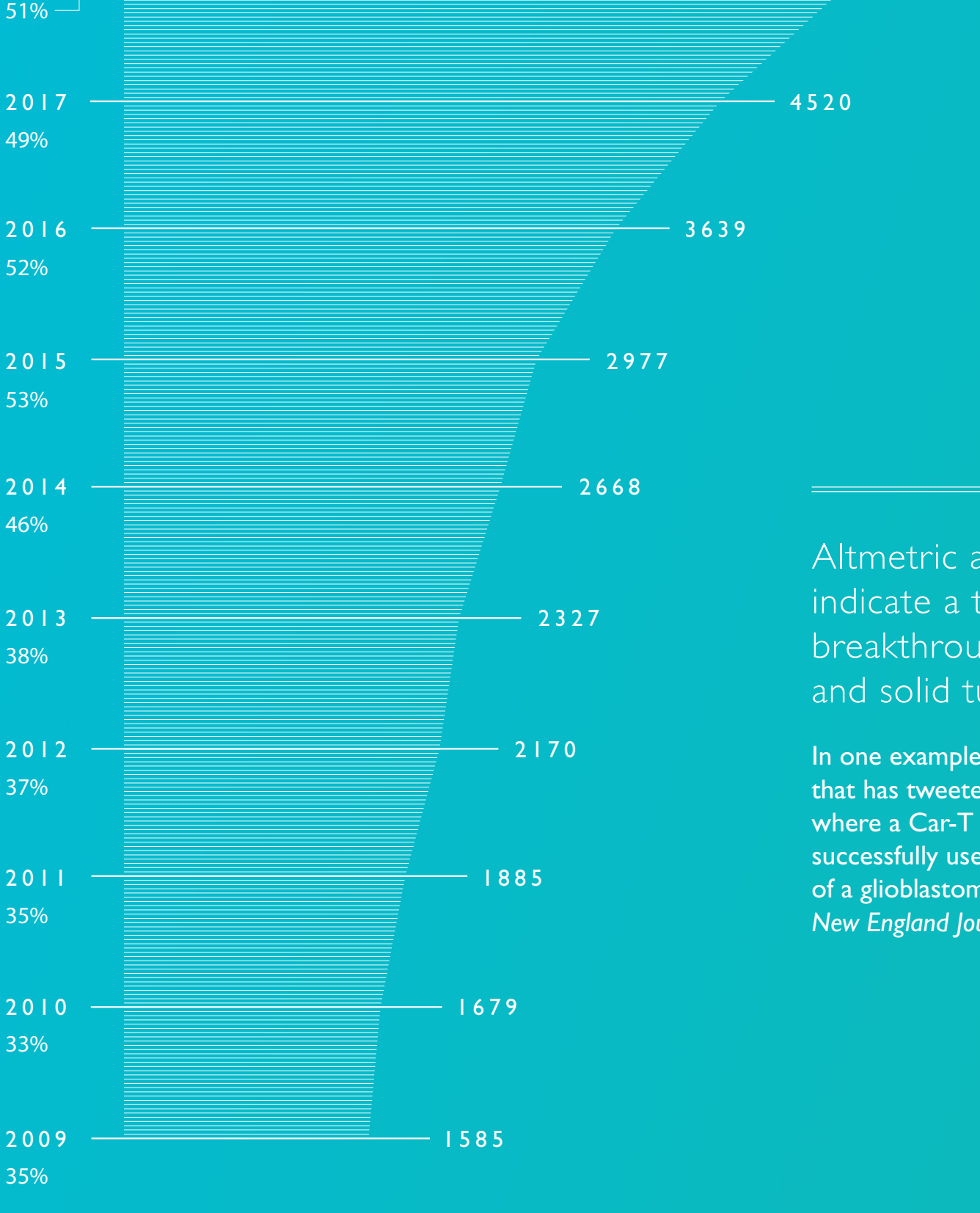
What will be essential from an early stage is for strategists, researchers and developers to truly validate and understand if proposed Car-T innovations are in fact rooted in solid peer-reviewed science, starting with the very early public grant awards to analysing the resulting publications from those awards, and the patents and clinical trials associated with this funded research.

Digital Science offers data capabilities and the connected data to help life science organisations understand the Car-T research and development landscape precisely, identify experts in very specific Car-T-related topics, and address challenges such as tackling solid tumor cancers with Car-T therapeutics.

In the snapshot analyses below, you will find global trends in Car-T research investment, research and innovation across a 10 year time span. We also use our NLP search technology to surface experts at the topic intersection of Car-T and solid tumor research using our unique database of awarded grants some running up to 2023 for our top expert. Car-T June - so what is funded now could indicate what becomes effective research in the near future.

¹ <http://www.evaluate.com/vantage/articles/analysis/spotlight/hovartis-and-gilead-multiple-myeloma-cars-diverge>

Publications on Car-T



GROWTH IN PUBLICATIONS IN CAR-T WITH AN ALTMETRIC SCORE

Uncovering insights around known challenges in Car-T research

The key to longer-term success in this space depends identifying antigens other than CD19 that can be targeted with Car-T therapy going beyond liquid cancers into solid tumor indications. Only 1 in 10 cancers are liquid ones. Academic and commercial groups are working to identify the antigens on solid tumor cells and develop suitable Car-T cells. The difficulty with solid tumors is that they are usually surrounded by a hostile, immuno-suppressive microenvironment. This environment presents many inhibitory factors that prevent cells from reaching them.²

Altmetric attention can indicate a therapeutic breakthrough in Car-T and solid tumors.

In one example, we find a clinician that has tweeted about a new study where a Car-T treatment was successfully used in the regression of a glioblastoma as reported by the *New England Journal of Medicine*.³

Dr. Paige Jarreau @FromTheLabBench
@SamanthaZY @MDABrainSpine @BTSMchat Researchers are just now looking into Car-T cells for solid tumors: <https://t.co/KBh53cBh5m>

THE NEW ENGLAND JOURNAL OF MEDICINE

ORIGINAL ARTICLE BRIEF REPORT

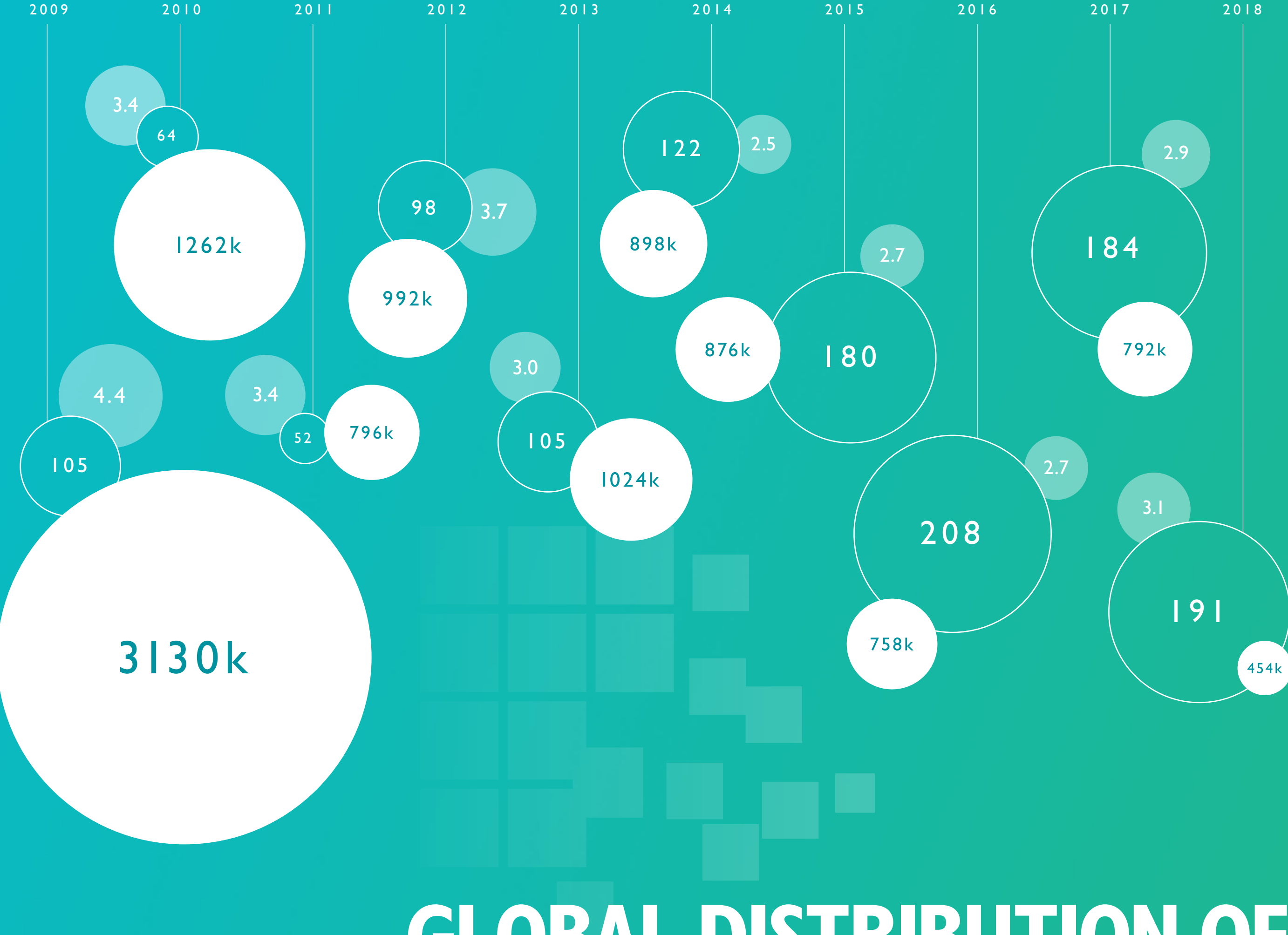
Regression of Glioblastoma after Chimeric Antigen Receptor T-Cell Therapy

Christine E. Brown, Ph.D., Darya Alizadeh, Ph.D., Renate Starr, M.S., Lihong Weng, M.D., et.al.

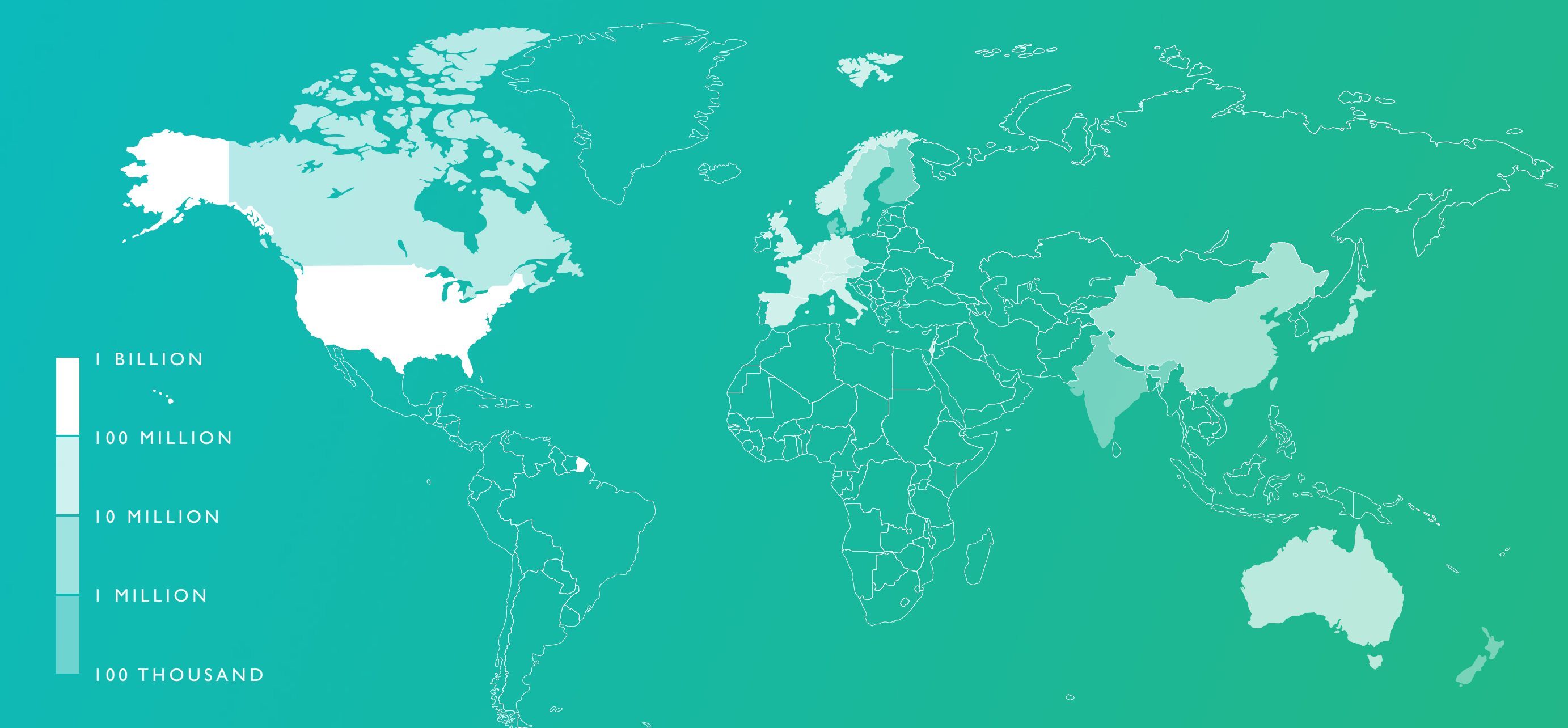
GRANTS AWARDED IN CAR-T BASED ON AWARDS DATA FROM OVER 300 GLOBAL PUBLIC FUNDERS AND FOUNDATIONS

² <https://www.researchandmarkets.com/reports/4617316/global-car-t-cell-therapy-market-market-size>
³ <https://www.nejm.org/doi/full/10.1056/NEJMoa1610497>

○ GRANTS AWARDED ● AVERAGE LIFESPAN PER GRANT (YEARS) ● AVERAGE VALUE PER GRANT (USD)



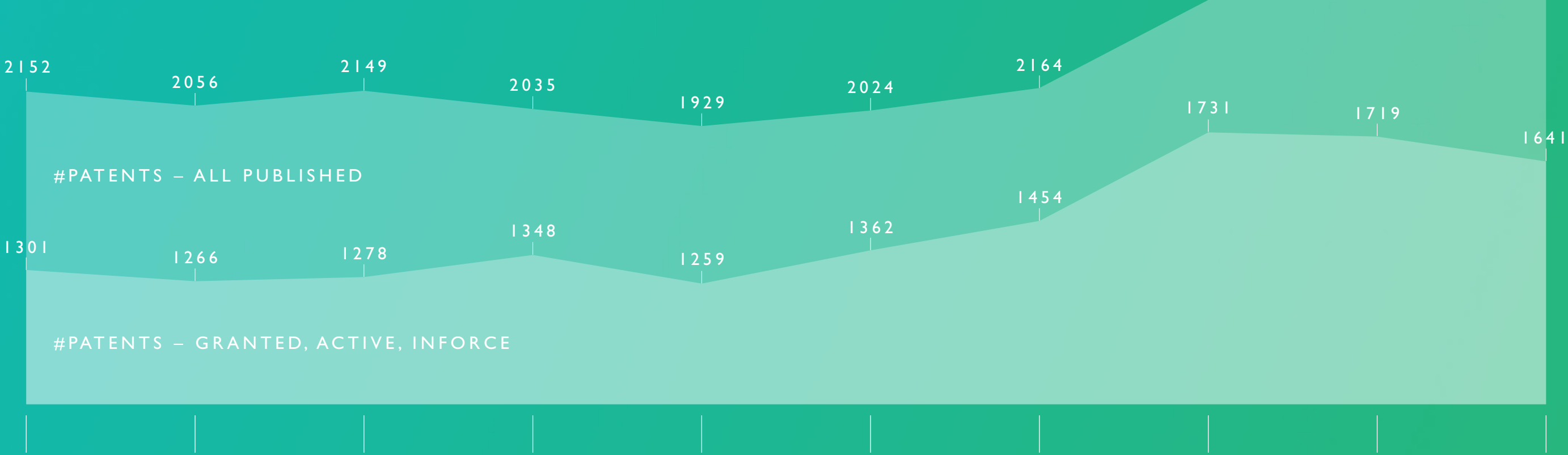
GLOBAL DISTRIBUTION OF GRANT AWARDS WHERE THE TOPIC IS CAR-T AND SOLID TUMORS⁴



INNOVATION ACTIVITY BASED ON PATENTING IN CAR-T

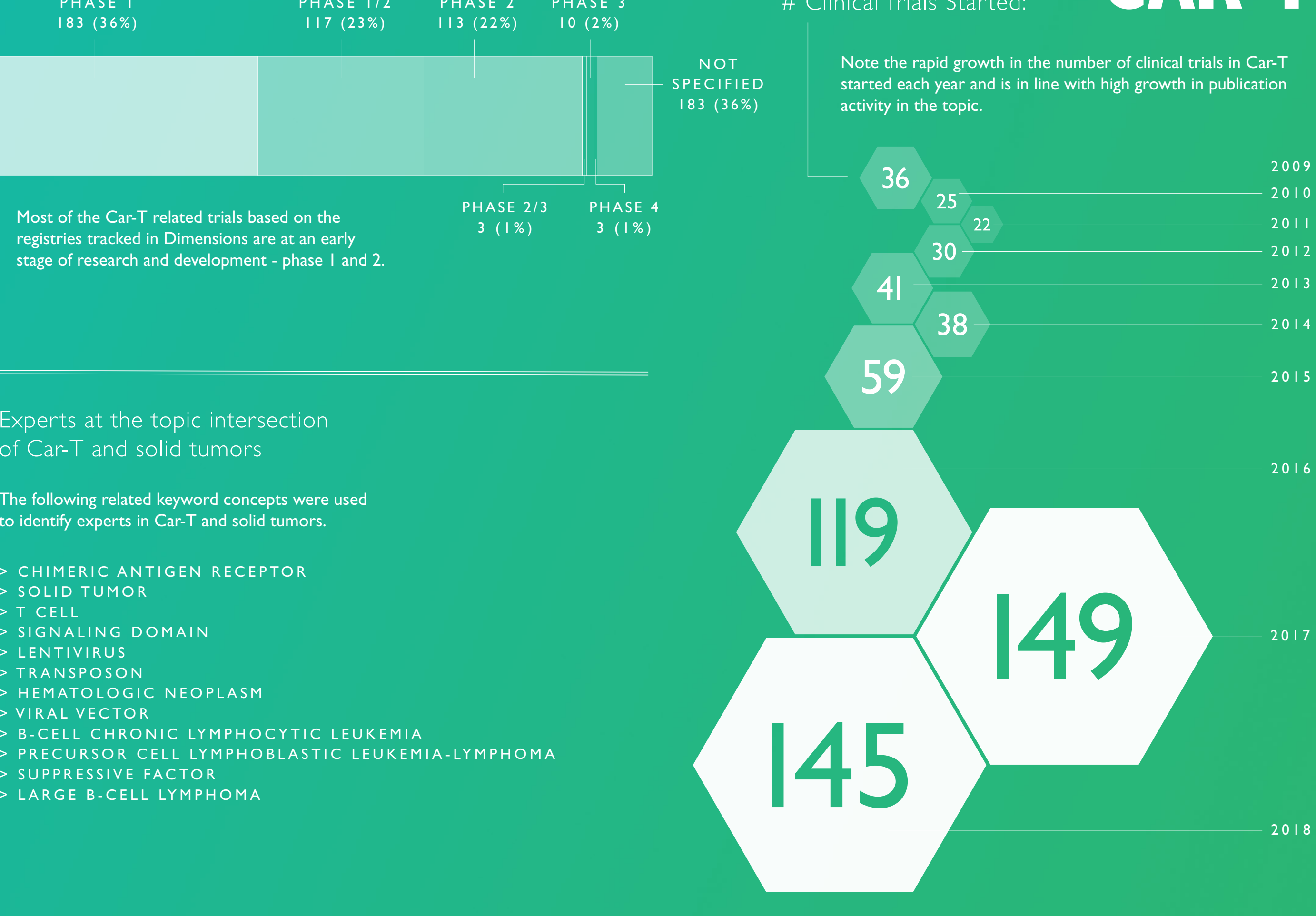
⁴ This abstract related to Car-T and solid tumors was used to find these awards, the awardees and the fiscal amounts awarded.

Patent Activity in Car-T



CLINICAL TRIALS IN CAR-T

Clinical Trials Started:



Experts at the topic intersection of Car-T and solid tumors

The following related keyword concepts were used to identify experts in Car-T and solid tumors.

- > CHIMERIC ANTIGEN RECEPTOR
- > SOLID TUMOR
- > T CELL
- > SIGNALING DOMAIN
- > LENTIVIRUS
- > TRANSPOSON
- > HEMATOLOGIC NEOPLASM
- > VIRAL VECTOR
- > B-CELL CHRONIC LYMPHOCYTIC LEUKEMIA
- > PRECURSOR CELL LYMPHOBLASTIC LEUKEMIA-LYMPHOMA
- > SUPPRESSIVE FACTOR
- > LARGE B-CELL LYMPHOMA

LEADING EXPERTS IN THE TOPIC BASED ON THESE CONCEPTS⁵

PI name	Organization	Published	Publications	Grants
Carl June	U Penn	1982-2019	454	17
Michel W Sadelain	Memorial Sloan Kettering Cancer Center	1982-2019	223	9
Renier Joseph Brentjens	Memorial Sloan Kettering Cancer Center	1994-2019	98	6
Laurence JN Cooper	MD Anderson Cancer Center	1988-2018	143	17
Marcella Valderama Maus	Mass Gen Hospital	1999-2019	64	3
Gian Pietro Dotti	University of North Carolina Chapel Hill	1993-2019	156	7
Heinrich Abken	University of Cologne	1986-2018	170	6
Zoltan Ivics	Paul Ehrlich Institute, a federal agency and subordinate to the German Federal Ministry of Health	1992-2019	146	8

Based on our expert identification algorithm, only 2 of the lead experts in Car-T and solid tumors reside outside of the United States. Both non-US experts are based in Germany. One, Zoltan Ivics specialises in efficient non-viral gene delivery into Human Hematopoietic Stem Cells by Minicircle Sleeping Beauty Transposon Vectors. The other, Heinrich Abken specialises in TRUCKs with IL-18 payload which involves shaping the immune landscape for a more efficacious CAR T-cell therapy of solid cancer.

⁵ This abstract from a recent highly cited review publication on Car-T and solid tumors was used to identify the experts: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6370640/>

START YOUR STRATEGY

E-mail us today to learn about how our data capabilities can help you with topics and experts analyses.

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