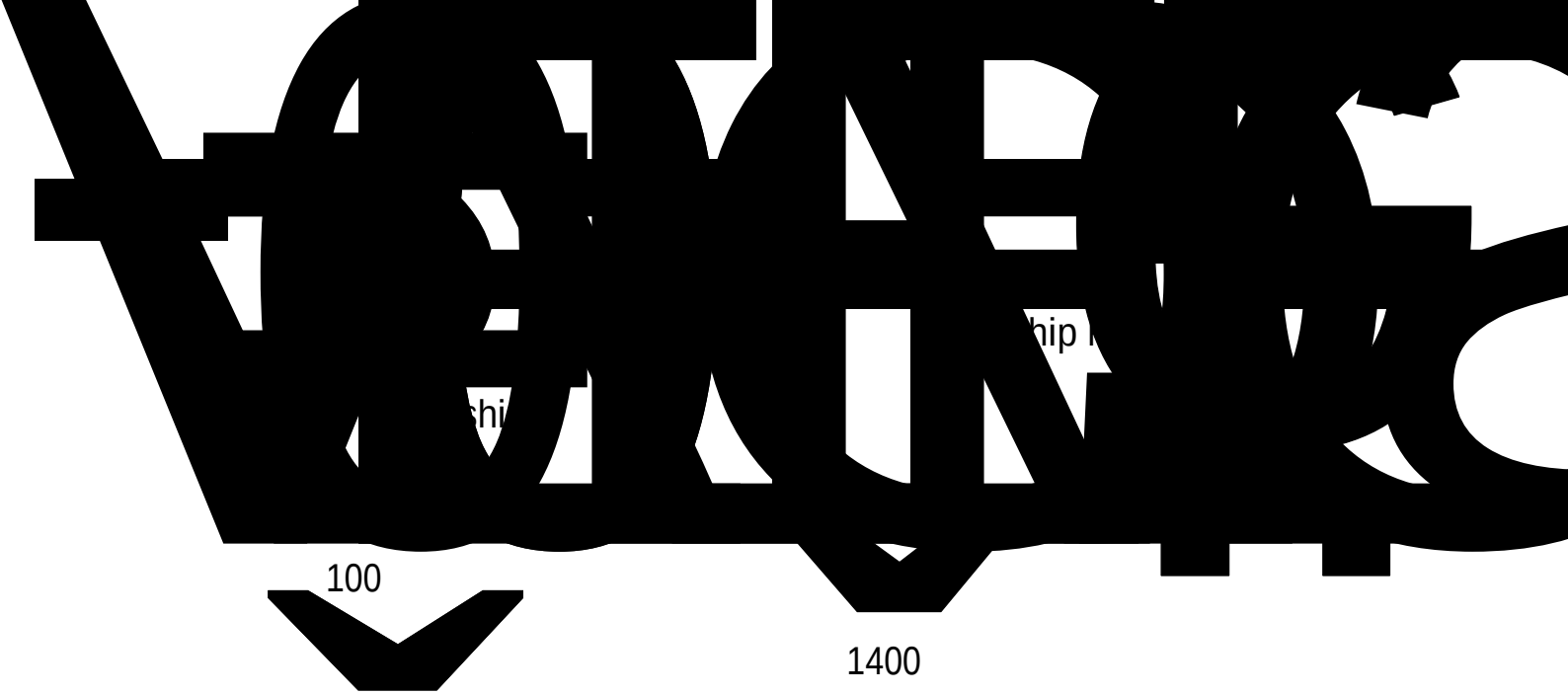


50 Flagship

26

190 p [1]

Afeyan 1983

Afeyan PerSeptive Biosystems

1

PerSeptive 1998

PerkinElmer/AppleraCorporation 3.6

Afeyan [2]

PerSpetive

PerSpetive

Afeyan

PerSpetive Exact Sciences

EXAS Agenus

AGEN Color Kinetics 2007 [3]

Afeyan

Flagship

Pioneering

Afeyan 1999 NewcoGen “

---

new company generation ” Afeyan

Flagship Ventures 2016 Flagship Pioneering

Flgaship

Afeyan Flagship

CEO

Flagship “ new space ”

Afeyan

“ crowded space ”

“ adjacent ”

Flagship

Flagship “ institutionalized entrepreneurship ”

(Exploration) (ProtoCo) (NewCo)

(Growth Co) Flagship

Flagship

Flagship

CEO C

Flagshi

80 O³

m

1 Flagship

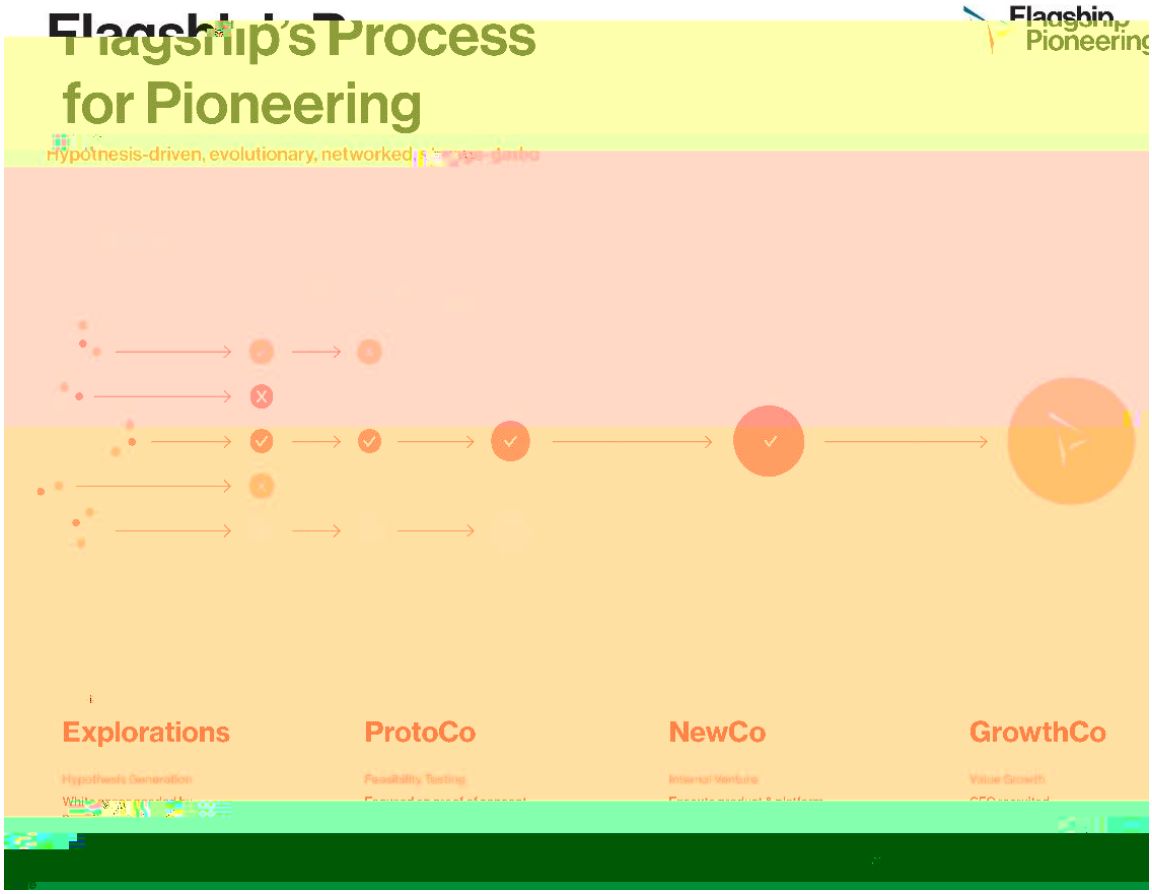
Flagship

(Exploration) (ProtoCo) (NewCo)

(GrowthCo) 2

Flagship

Flagship



Flagship Pioneering

2 Flagship Pioneering

1. Explorations

Flagship “ Explorations ” Flagship “ …… What if ” “ ” venture hypothesis Flagship

Flagship 80 100 [4]

Flagship

Flagship ——

Flagship

3-6

2. ProtoCo

Flagship “ ProtoCo ”

——

Flagship Labs

prototype company

3-4 6-7

Flagship

Flagship

Flagship 8-10

9-12

“ FL1 ”

“ FL2 ” …… “ FL63 ” Flagship 100-150

Flagship

Flagship

——

3. NewCo

“ NewCo ” new company

Flagship

Flagship

CEO

20-30

Flagship

2 2,500

Flagship

50%

4. GrowthCo

“ NewCo ” Flagship

“ NewCo ” “ GrowthCo ”, growth company

Flagship CEO

Flagship

Flagship

CEO Flagship

Chief Innovation Officer

Flagship

Flagship

Flagship

Flagship

Flagship

Flagship

Flagship 9 3

39% Flagship

A B 3 Flagship

1. Flagship Pioneering

Flagship 2000 2021 9

65 1 Special Opportunities Fund

portfolio company [5]Flagship

4 Fund IV 5 Fund V 6 Fund VI Net IRR 51% 39%

68% [6] 7 Fund VII 30 34 Flagship

1 Flagship

			Net IRR
Flagship Ventures Fund I	2000	156	5.0%
Flagship Ventures Fund II	2004	152	0.3%
Flagship Ventures Fund III	2007	235	-16.6%
Flagship Ventures Fund IV	2010	269	51.8%
Flagship Ventures Fund V	2015	585	39.1%
Flagship Ventures Special Opportunities Fund I	2016	285	3.2%
Flagship Ventures Fund VI	2017	618	68.1%
Flagship Pioneering Special Opportunities Fund II	2019	824	20.2%
Flagship Pioneering Origination Fund VII	2021	3,400	

Preqin Flagship Pioneering 2022

8 9

Flagship

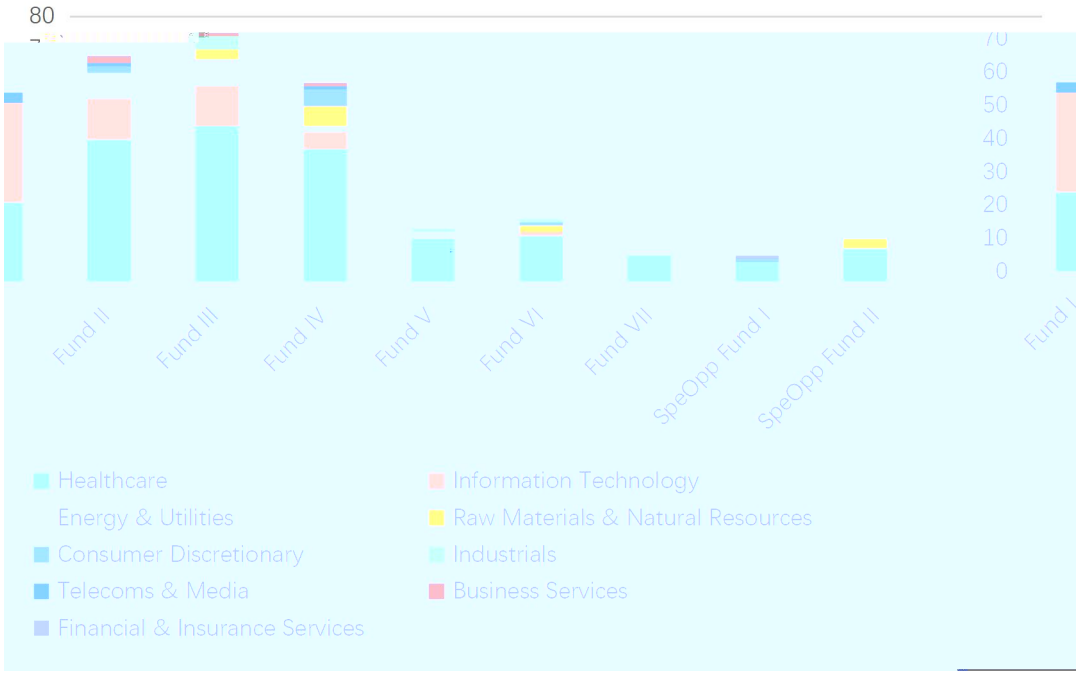
3 [7] Healthcare

Flagship Information Technology

Energy & Utilities

Raw Materials & Natural Resources

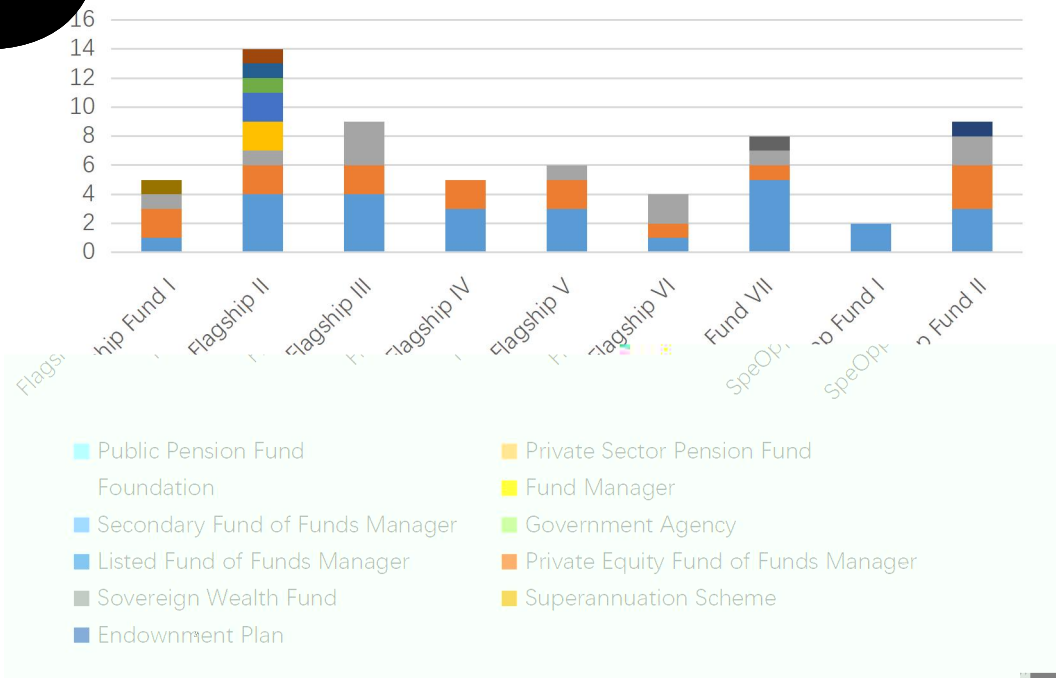
Consumer Discretionary



Preqin 2022 7 5

3 Flagship

Flagship 4 [8]



Preqin 2022 7 5

4 **Flagship**

[illegible]

[illegible] 1 [illegible] 5

[illegible] ship [illegible]

B 25.71%

2 Flagship

Seed	4	1.20%	3	1.38%	0.90%
Series A	82	24.55%	56	25.69%	68.29%
Series B	84	25.15%	62	28.44%	73.81%
Series C	57	17.07%	37	16.97%	64.91%
Series D	25	7.49%	17	7.80%	68.00%
Series E	15	4.49%	10	4.59%	66.67%
Series F	5	1.50%	5	2.29%	100.00%
Growth Capital/Expansion	2	0.60%	1	0.46%	50.00%
Unspecified Round	58	17.37%	25	11.47%	43.10%
Venture Debt	2	0.60%	2	0.92%	100.00%
	334	**100.00%**	**218**	**100.00%**	**65.27%**

Preqin 2022 8 8

3 Flagship

Series A-C & E	1	1.43%
Series A-D	3	4.29%
Series A-D & F	1	1.43%
Series A-C & E & Growth Capital/Expansion	1	1.43%
Series A-E	2	2.86%
Series A-F	1	1.43%
Series A-F & Venture Debt	1	1.43%
Series B & Unspecified Round	2	2.86%
Series B & C	2	2.86%
Series B & D	2	2.86%
Series B-C & Unspecified Round	2	2.86%
Series B-D	1	1.43%
Series B-E & Unspecified Round	1	1.43%
Series B-D &F	1	1.43%
Series C & Unspecified Round	1	1.43%
Series C-D & Unspecified Round	1	1.43%
Seed & Series A-B	1	1.43%
Seed & Series A-C	2	2.86%
Unspecified Round	5	7.14%
Unspecified Round & Venture Debt	1	1.43%
	70	100%

Preqin 2022 8 8

3. Flagship Pioneering

Flagship

Preqin 4 2000

2021 Flagship 140 31

19 Flagship

19 17 12

2 IPO

11%

6.90% [10]

4 Flagship

Healthcare		9	29.03%	6.21%	7
	IPO	8	25.81%	5.52%	8
		2	6.45%	1.38%	2
Information Technology		10	32.26%	6.90%	2
		2	6.45%	1.38%	0
		31	**100.00%**		**12**

Preqin 2022 8 8

Flagship 2010

mRNA

2019

Flagship

Flagship

Kaleido Biosciences “ Kaleido ”

Flagship “

”

Flagship mRNA RNA

Messenger RNA

Flagship mRNA

1. “ ”

2010 Flagship Afeyan

BobLanger mRNA

[11]Afeyan

mRNA

Flagship

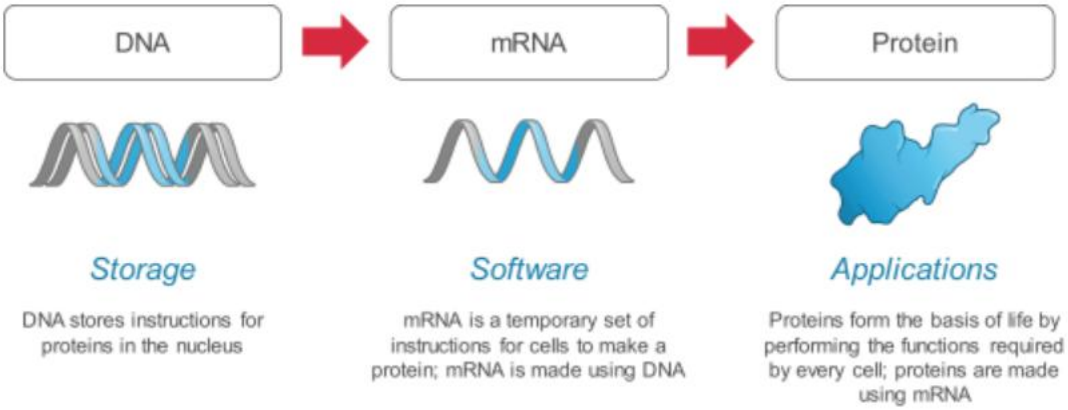
“ ”

Afeyan mRNA

mRNA

“ ”

mRNA



5 mRNA

mRNA

Flagship “ ”

Afeyan

2.

Afeyan Flagship Doug Cole

“

mRNA [12]

mRNA

mRNA

RNA

3

Flagship

Flagship

LS18 “ Moderna ”

6

mRNA

Flagship

Flagship 2010 7

10

bioMérieux SA Stéphane Bancel 2011 3

2011 10 WIPO

Patent Scope 2022 6

1004 PCT 180

mRNA-1273

SARS-CoV-2

2020 12 [13]2022 6

FDA 6

6 5 [14]

3.

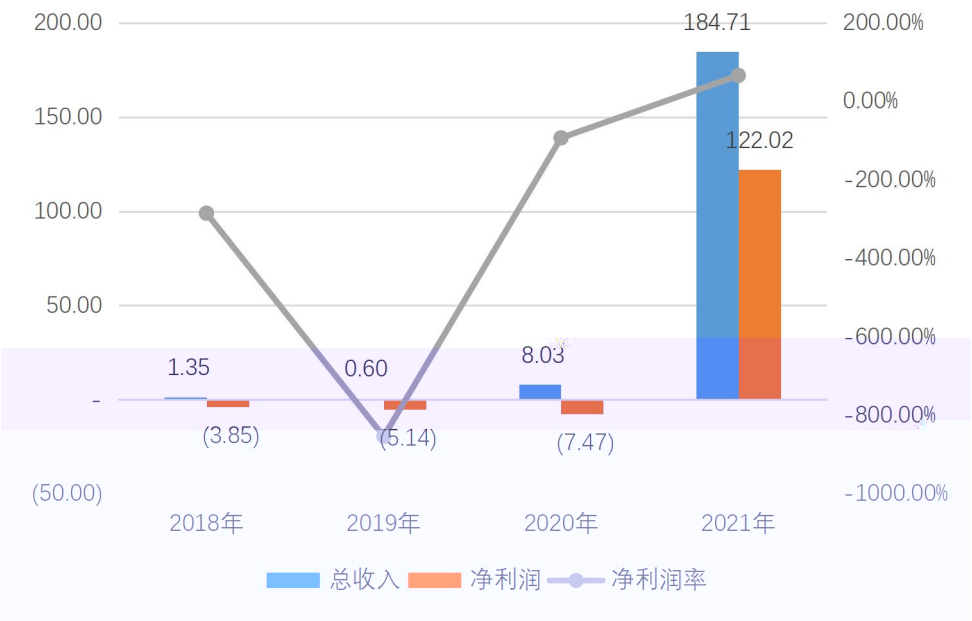
2018 12 7

MRNA 23 2,600

6.04 2018-2020

2021 2020

-92.99% 66.06% 6



Wind 2022 6 22

6 2018-2021

19

5 Flagship

Flagship

A-D F

Biomedical Advanced Research and Development Authority 9.5 PIPE

15

5

			Flagship
2011/3/8	Series A	2.10	
2011/12/27	Series B	3.20	
2012/12/6	Series C	17.38	
2013/11/6	Series D	110.00	

2014/12/18	Series E	450.00	
2016/9/7	Series F	451.37	
2018/2/1	Series G	500.00	
2018/5/7	Series H	125.00	
2015/1/13	Unspecified Round	100.00	
2016/6/29	Unspecified Round	200.00	

Preqin 2022 8 9

Flagship 19.5%

17.9% 5,888

7 [16] Flagship

13.5

Name and Address of Beneficial Owner(1)	Shares Beneficially Owned Prior to Offering Number	Percentage	Shares Beneficially Owned After Offering Number	Percentage
Named Executive Officers and Directors:				
Stéphane Bancel, *Chief Executive Officer*(2)(3)	30,942,575	10.0%	30,942,575	9.2%
Stephen Hoge, M.D., *President*(4)	4,071,731	1.3%	4,071,731	1.2%
Lorence Kim, M.D., *Chief Financial Officer*(5)	2,277,407	*%	2,277,407	*%
Noubar B. Afeyan, Ph.D., *Chairman*(6)	58,882,696	19.5%	58,882,696	17.9%
Moncef Slaoui, Ph.D., *Director*(7)	42,201	*%	42,201	*%
Peter Barton Hutt, LL.M., *Director*(8)	881,993	*%	881,993	*%
Robert Langer, Sc.D., *Director*(9)	11,680,126	3.9%	11,680,126	3.6%
Elizabeth Nabel, M.D., *Director*(10)	118,245	*%	118,245	*%
Israel F[illegible] *Director*(11)	46,760	*%	46,760	*%
Stephen Berenson, *Director*(12)	64,999	*%	64,999	*%
Paul Sagan, *Director*(13)	461,429	*%	461,429	*%
All executive officers and directors as a group (15 persons)(14)	111,906,860	35.6%	111,906,860	32.8%
Other 5% Stockholders:				
Flagship Pioneering and affiliated entities(6)	58,882,696	19.5%	58,882,696	17.9%
AstraZeneca and affiliated entities(15)	25,499,325	8.4%	25,499,325	7.8%
Timothy Springer, [illegible] affiliated entities(16)	17,308,185	5.7%	17,308,185	5.3%
Viking Global Investors LP and affiliated entities(17)	16,667,866	5.5%	16,667,866	5.1%

7 IPO

2021 12 31 5%

37.95% Baillie

Gifford 11.29% Stéphane Bancel

7.78% 6 Wind 2022 3

Flagship 4.4% 30

2022 7 15 166.91

6 2021 12 31 5%

Baillie Gifford	4,577.21	11.29%
Stéphane Bancel	3,153.82	7.78%
BlackRock	2,766.15	6.82%
AstraZeneca PLC	2,549.93	6.29%
the Vanguard Group	2,337.19	5.76%
	15,384.29	**37.94%**

Wind

Flagship Microbiome Metabolic Therapies " MMT "

Kaleido Biosciences MMT

Kaleido

Kaleido

Flagship

1.

Kaleido 2015 " VL32 "

2007 Flagship

Flagship

2013 Flagship

Flagship

Kaleido

MMT

Kaleido

2019 2 Kaleido 15

500 7,500

Kaleido 3 1.65 [17]

2021 12 Kaleido

JanssenBiotechInc. MMT

2. KB109

Kaleido KB109

MMT

2020 5 Kaleido

“ FD&C ” KB109 IND

Kaleido FDA

FDA Kaleido KB109

IND

KB109 KB109

Kaleido KB109

KB109

KB109 IND

Kaleido FD&C

Kaleido

Kaleido KB109

Kaleido KB109 GRAS

Generally Recognized as Safe KB109

KB109

Kaleido

(Centers for Disease Control and Prevention CDC)

(SSC Supportive Self Care)

KB109

FDA

FDA KB109 Kaleido

IND

FAD Kaleido FD&C FDA

4. Kaleido

Kaleido KB109

IND FDA

Kaleido

Kaleido

Kaleido 2021

2,308

5,565 2022 [18] 2019

2.4 Kaleido

2022 1 Kaleido 30%

Kaleido 2

Kaleido KB109 COPD

COPD Kaleido

2022 4 8 Kaleido

Kaleido 0.27 0.11

FDA Kaleido

Flagship

Flagship

Flagship

p

Flagship

Flagship

1.

Flagship “ ”

institutionalized entrepreneurship Afeyan

entrepreneurship process

condition

Flagship

Flagship

“ ”

50%

“ ”

Flagship

Flagship

2.

Flagship Afeyan

Afeyan

Flagship

Doug Cole

Cole

Flagship Flagship

Flagship

Flagship

Flagship

3.

Flagship

Flagship Derwent Innovation WIPO Flagship 2015-2017 PCT 2017 1 114 PCT 1 Flagship 2017 12 PCT Flagship 138 PCT 13-98 [19] Flagship

Flagship

Flagship

4.

Limited Partner LP General Partner GP

LP GP

Flagship Flagship

Flagship

B

Flagship

IPO

Flagship Flagship

18%

Flagship Bay Bridge

Bio 2018-2021

Flagship 22.87 5 9

Rubius Therapeutics

RUBY Evelo Biosciences

EVLO OrbiMed ARCH

Venture tners Third Rock

20

7 2018-2021

IPO

IPO

1	Flagship Pioneering	9	22.87
2	OrbiMed	34	21.70
3	Viking Global	11	13.51
4	ARCH Venture Partners	13	12.33
5	Atlas Venture	12	10.90
6	Versant	14	10.32
7	Third Rock	9	10.29
8	Foresite Capital	11	9.41
9	RA Capital Management	29	9.35
10	GlaxioSmithKline	8	8.86
11	Baker Brothers	12	8.16
12	KKR	3	6.80
13	Venrock	7	6.64
14	Pfizer Venture Investment	8	6.13
15	Fidelity	24	4.13

Flagship

Flagship

1.

2021

2021 EU Industrial R&D Investment Scoreboard 2500

438

231 52.74% 65 14.84%

8

6

8 2021

			2020	(%)	(%)
1	ROCHE		11,246.70	3.91	20.84
2	JOHNSON & JOHNSON		9,908.73	7.08	14.72
3	BRISTOL-MYERS SQUIBB		8,409.26	70.93	24.27
4	MERCK US		8,331.03	10.51	21.30
5	PFIZER		7,837.18	16.11	22.95
6	BAYER		7,704.00	36.89	18.11
7	NOVARTIS		7,113.52	0.74	17.49
8	SANOFI		5,527.00	-8.11	15.34
9	ABBVIE		5,037.08	14.31	13.49
10	GLAXOSMITHKLINE		5,034.01	6.08	13.50

2021

2018 472

2016-2019 10.8

2019 3 [21]

2019

NIH

310 [22]

2016-2019

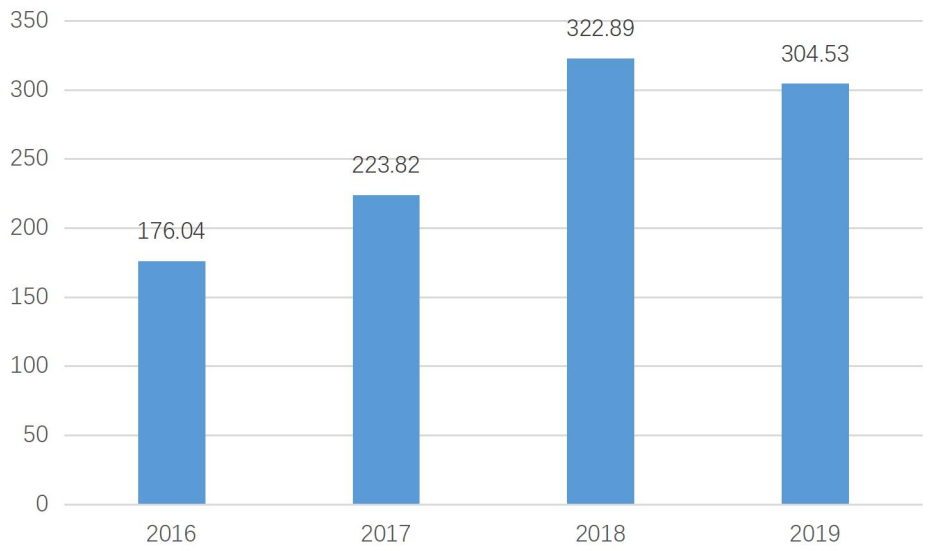
1,020 2018 2019

300 8

50%

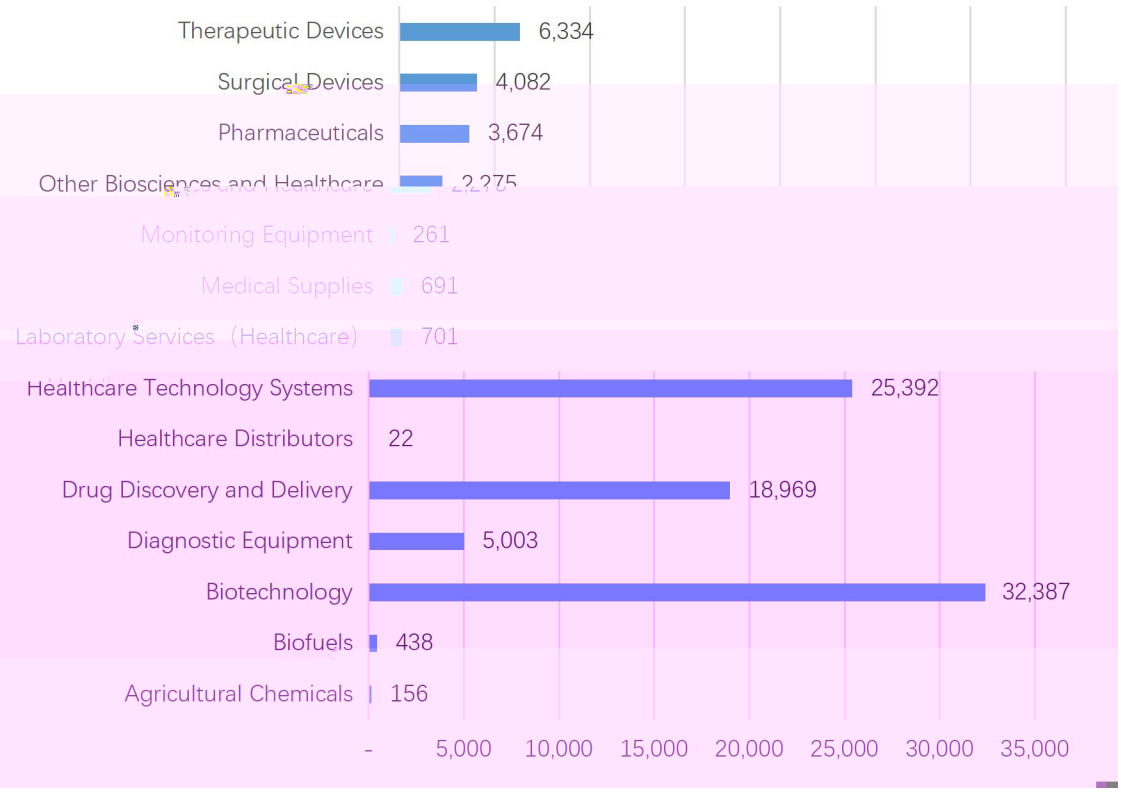
15%

9



TEconomy Partner analysis of PitchBook Data, Inc.

8 2016-2019



TEconomy Partner analysis of PitchBook Data, Inc.

9 2016-2019

Flagship

Flagship

Flagship

3 5

8

3 Flagship

Flagship

Flagship

Flagship

Flagship

“ ”

2.

Flagship Afeyan

Afeyan

Afeyan

Flagship

Afeyan

Kaleido

Afeyan Kaleido

3.

Flagship 2009

Flagship Pioneering Fellowship

Flagship

2020 Flagship 25

Flagship Flagship

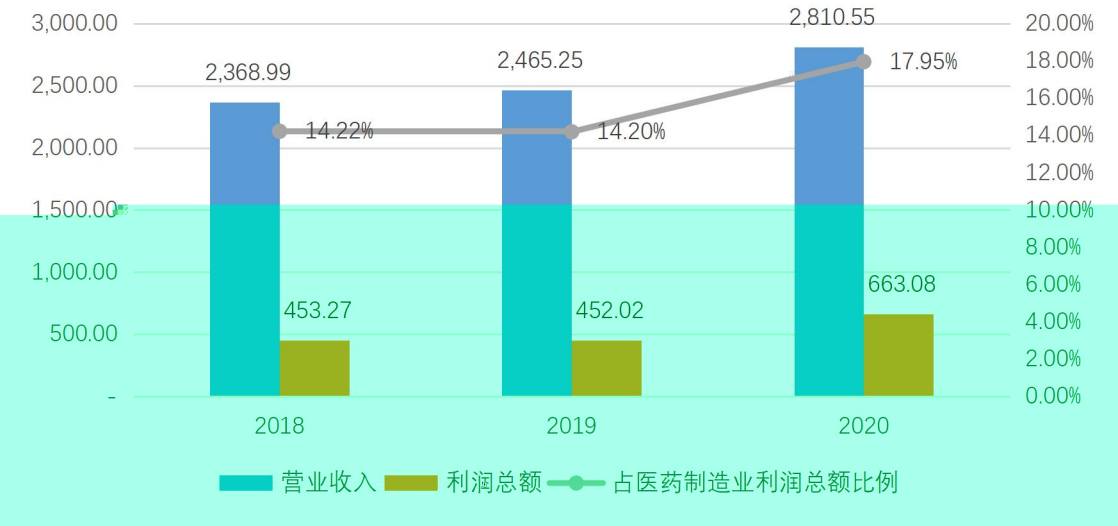
Flagship

Flagship

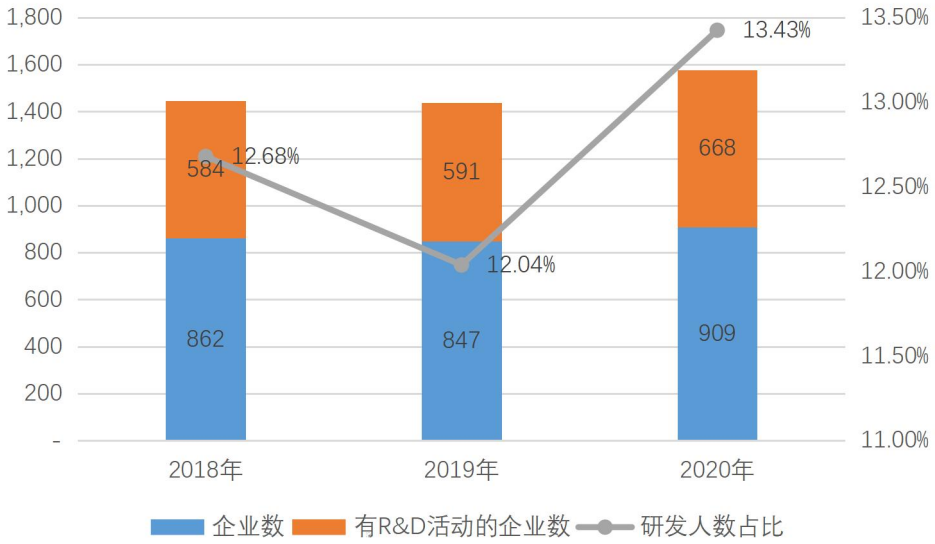
4.

Flagship

Q J 9 Óh@



10　　2018-2020



11　　2018-2020

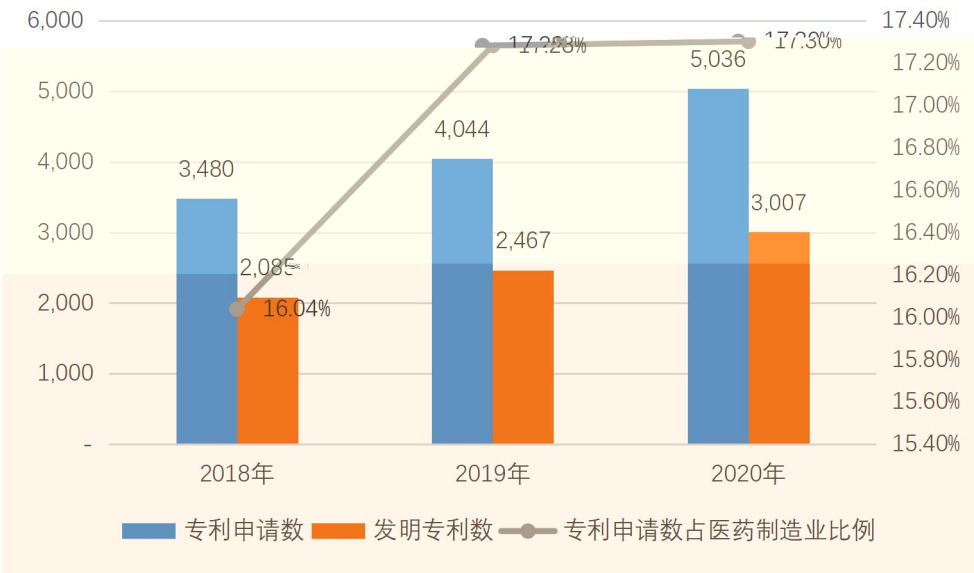
2018-2020

2020　　5000　　3000

12

2020

1.09 10.1% [24]



12 2018-2020

1984

2010

2022

“ ”

2018 4

7

60

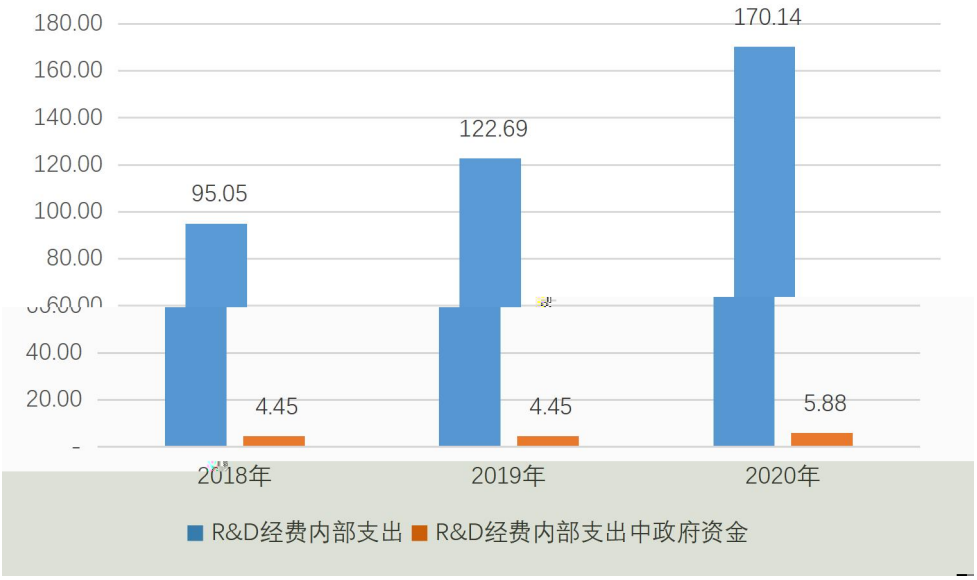
14-20

2020

170

3.45% 13

“ ”



13 2018-2020

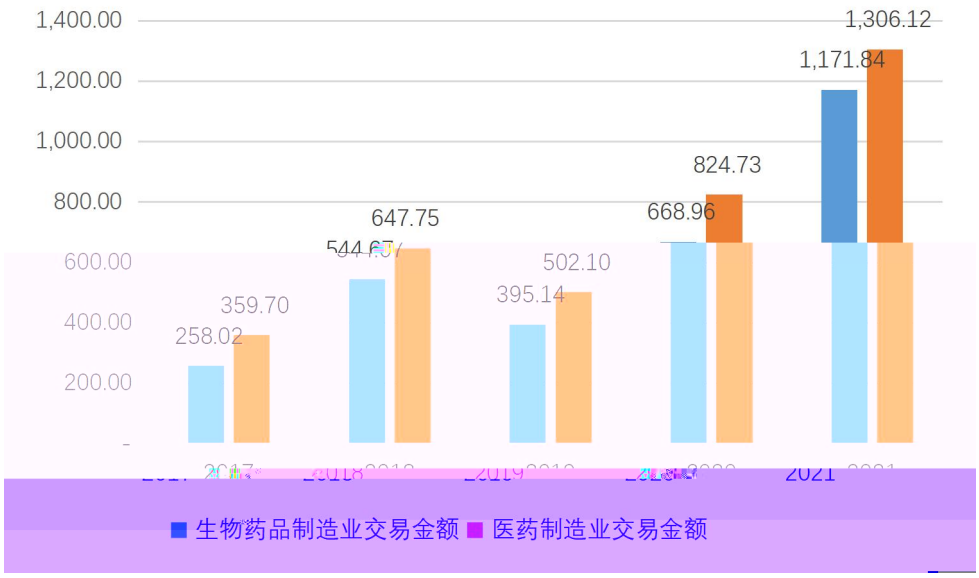
2020 CVSource

2020 800

14 2019 69% 2021

1,170 2021

89% [25]



CVSource

14 **2017-2021**

Flagship

Flagship

Kaleido

1	Acceleron Pharma	2004	Human Health	Exit
2	Adnexus Therapeutics	2003	Human Health	Exit
3	Affinnova	2000	Technologies	Exit
4	Agios Pharmaceuticals	2007	Human Health	Exit
5	Alvine Pharmaceuticals	2006	Human Health	Exit
6	Avedro	2009	Human Health	Exit
7	Aveo Oncology	2003	Human Health	Exit
8	Avidimer Therapeutics	2003	Human Health	Exit
9	Axcella Therapeutics	2011	Human Health	Current
10	BG Medicine	2000	Human Health	Exit
11	BIND Therapeutics	2007	Human Health	Exit
12	Black Duck Software	2003	Technologies	Exit
13	Celexion	2009	Human Health	Exit
14	Cellarity	2017	Human Health/Technologies	Current
15	CGI Pharmaceuticals	2001	Human Health	Exit
16	CIBO Technologies	2015	Sustainability/Technologies	Current
17	Codiak Biosciences	2015	Human Health	Current
18	Codon Devices	2004	Human Health	Exit
19	CombinatoRx	2002	Human Health	Exit
20	Concert Pharmaceuticals	2006	Human Health	Exit
21	Denali Therapeutics	2015	Human Health	Current
22	Editas Medicine	2013	Human Health	Exit
23	Eleven Biosciences	2008	Human Health	Exit
24	EngeneOS	2000	Human Health	Exit
25	Ensemble Therapeutics	2003	Human Health	Exit
26	Epitome Biosystmes	2003	Human Health	Exit
27	Evelo Biosciences	2015	Human Health	Current
28	Foghorn Therapeutics	2016	Human Health	Current
29	Generate Biomedicines	2018	Human Health	Current
30	Genomics Collaborative	2000	Human Health	Exit
31	Harbinger Health	2018	Human Health/Technologies	Current
32	Helicos BioSciences Corporation	2004	Human Health	Exit

-th

40	Korrus	[illegible]	Sustainability	Current
41	KSQ Therapeutics	2015	Human Health	Current
42	Larondee	2017	Human Health	Current
43	LS9	2005	Sustainability	Exit
44	Mascoma Corporation	2006	Sustainability	Exit
45	Midori Health	2011	Human Health	Exit
46	Moderna	2010	Human Health	Current
47	Morphotek	2001	Human Health	Exit
48	Nanostream	2001	Human Health	Exit
49	Novomer	2007	Sustainability	Exit
50	Oasys Water	2009	Sustainability	Exit
51	Omega Therapeutics	2017	Human Health	Current
52	Permeon Biologics	2011	Human Health	Exit
53	Pervasis Therapeutics	2003	Human Health	Exit
54	ProFound™ Therapeutics	2020	Human Health	Current
55	Quanterix	2007	Human Health	Exit
56	Receptos	2009	Human Health	Exit
57	Renovis	2001	Human Health	Exit
58	Repertoire Immune Medicines	2019	Human Health	Current
59	Resolvyx Pharmaceuticals	2005	Human Health	Exit
60	Ring Therapeutics	2017	Human Health	Current
61	Rubius Therapeutics	2014	Human Health	Current
62	Sana Biotechnology	2018	Human Health	Current
63	Seahorse Bioscience	2001	Human Health	Exit
64	Selecta Biosciences	2008	Human Health	Exit
65	Selventa	2001	Human Health	Exit
66	Send			

Flagship 2022 6 29

[illegible]

[illegible]2006,12):[illegible]

I:10.139 !]2016,5U(10):112-125.

[3] , , .

[J]. ,2008(01):132-135.

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[2022-7-18] https://www.nmpa.gov.cn/xxgk/zhqyj/zhqyjyp/20180426171801468.html

[17] .
2018 50 [2022-7-18]https:/

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