



OrbiMed
Healthcare Fund Management

The Life Science Landscape

October 2018

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Market update

why

healthcare

Significant
unmet need

Basic science has had time to
mature into therapy

Changing ecosystem =
opportunity: healthcare reform,
emerging markets, empowered
patients, new players

Responsive markets

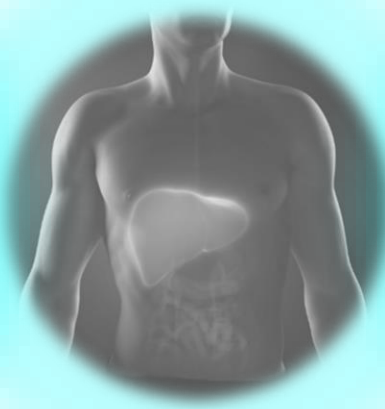
Basic Science Has Matured Into Cures



paraplegics
can walk



blind
can see



hepatitis C
is treatable



melanoma
is treatable

Multiple scientific breakthroughs have materialized,
converging into therapies addressing significant unmet medical need

Macro Changes Create Opportunity

MORE

PATIENTS

Healthcare reform adds 36m patients

Aging population – 2bn >60 by 2050

Emerging markets offer growth

+ healthcare fundamentals:
high margins, IP protection

MORE

ACCESS

Empowered patients – a “call point”

New healthcare players –
e.g. Apple Google Samsung Intel
Facebook Microsoft LG IBM etc –
consumer market access,
acquisitive cultures



Wearables, health data
collection and analytics



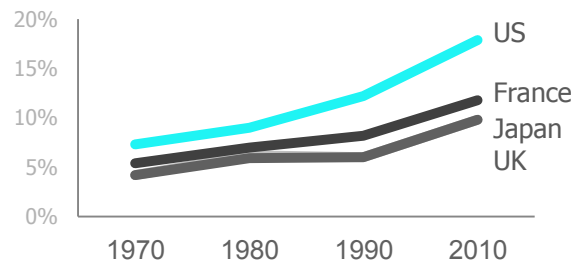
Glucose monitoring contact
lens, Diagnostic pill



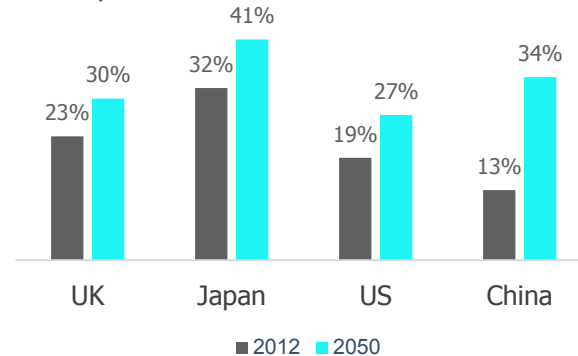
Parkinson's wearable project
with MJ Fox Foundation

Strong fundamentals. Most FDA approvals since 1997

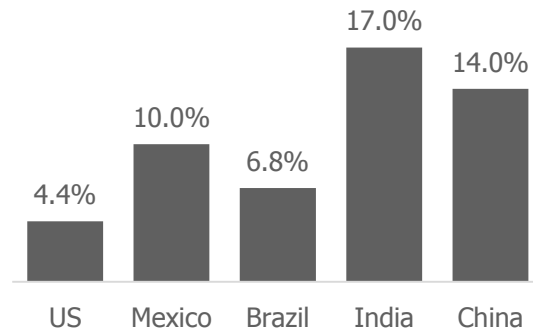
Rising healthcare as % of GDP



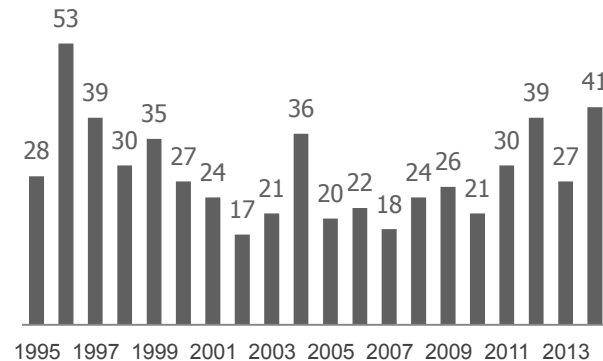
Aging population % > 65 yrs



Fast growth emerging markets Healthcare spend 2013-2017, % growth



Rising FDA approvals

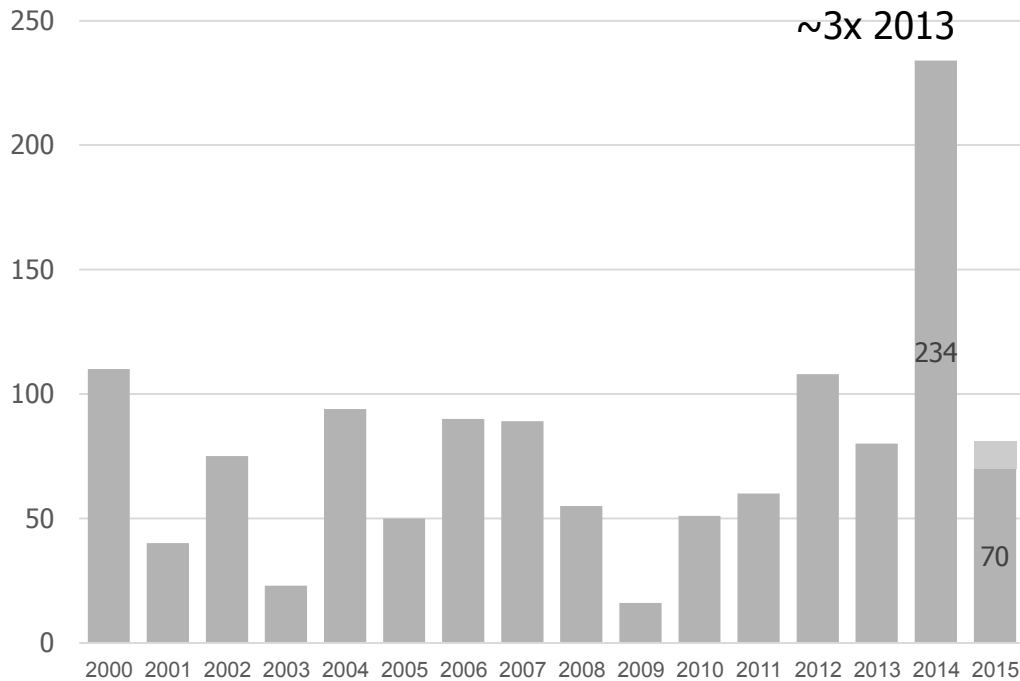


Source: OECD, United Nations Population Data, Deloitte, Washington Analysis, BioCentury

Hungry pharma accelerate buying, going earlier stage

Accelerated M&A

\$bn, through March 13, 2015



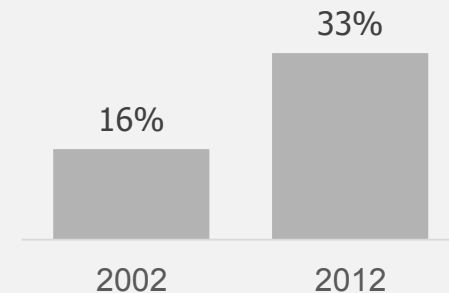
e.g. Genentech website, March 2015: "Today, approximately **50%** of Genentech's pipeline and marketed products derive from successful collaborations with companies and institutions from around the world"

Source: Thomson Reuters



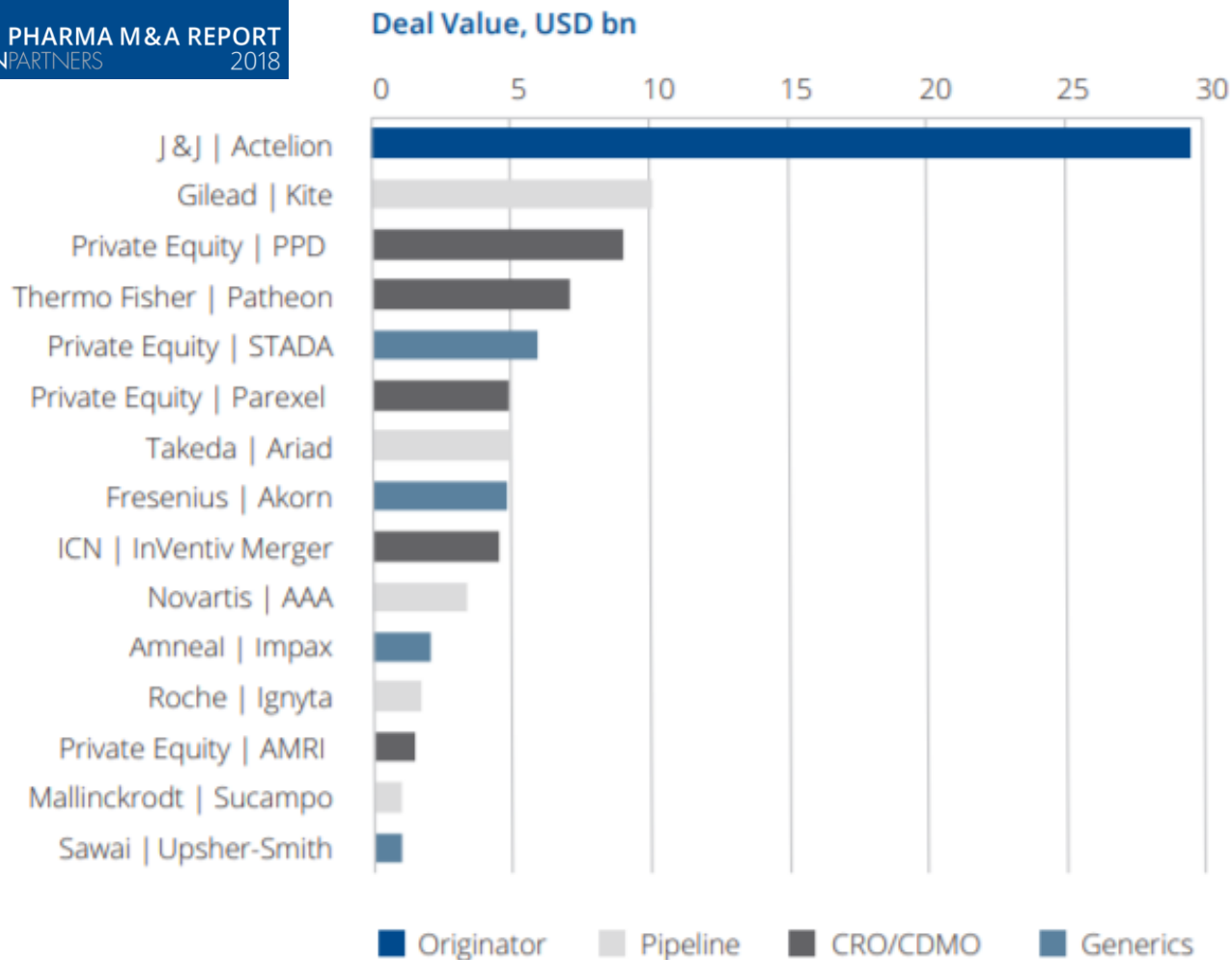
Not Invented Here pipelines

% of drugs developed by top 10 pharma originating from small companies



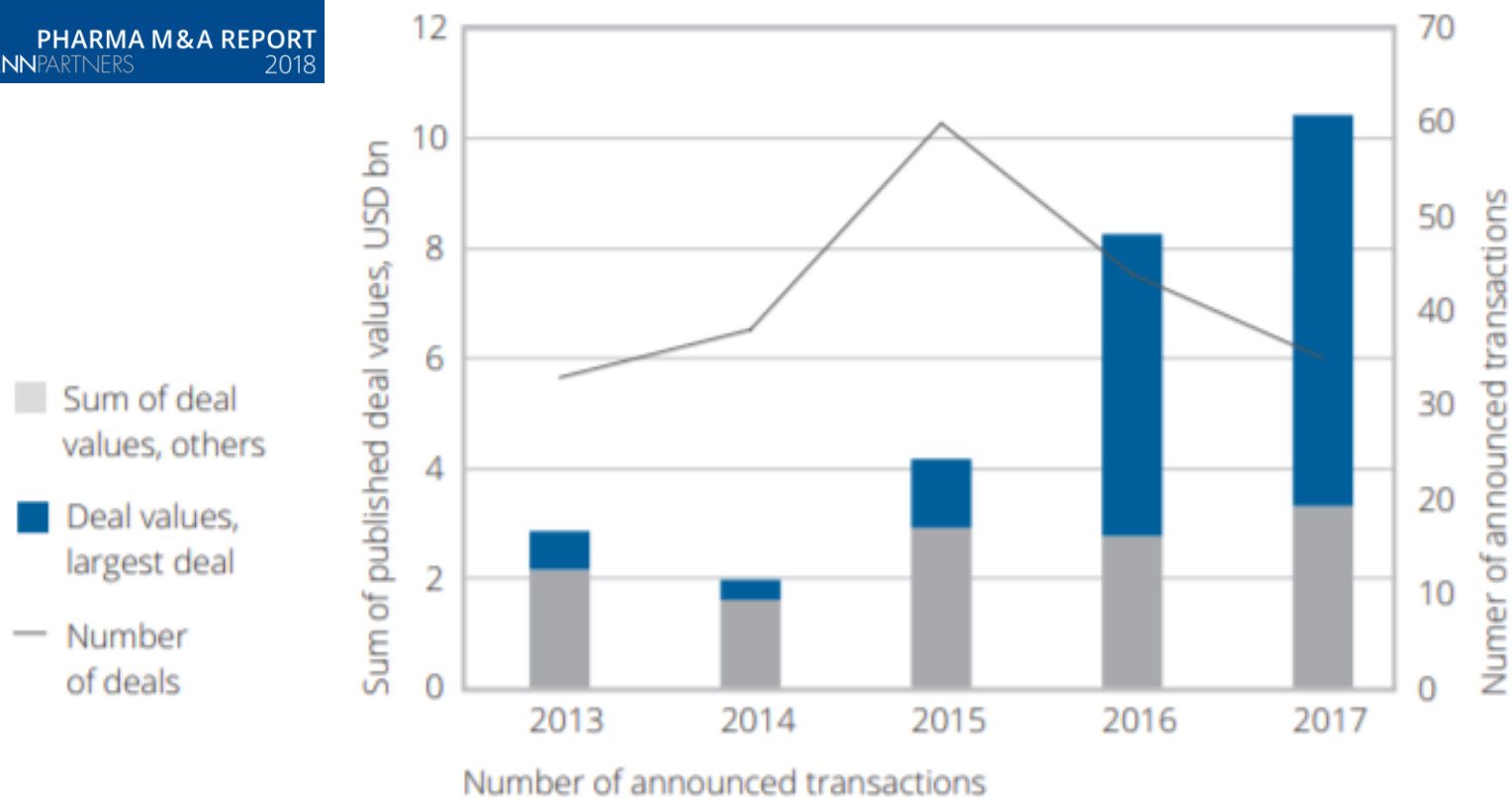
2017 Deals Chart

PHARMA M&A REPORT
KURMANN PARTNERS 2018



Number vs Value

PHARMA M&A REPORT
KURMANN PARTNERS 2018



Going earlier stage

Early stage, % of M&A deals
27.7%

16.5%

2004

2014

Early stage, % of licensing value

39.6%

2004

54.7%

2014

Early stage, % of licensing deals

42.4%

2004

58.6%

2014

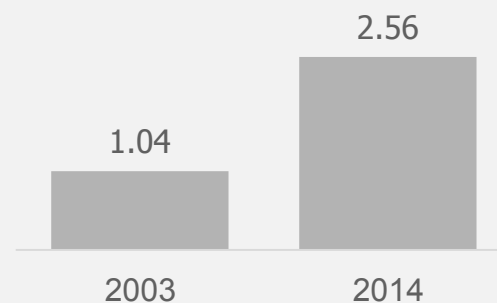
Driven by patent cliff, costly R&D

\$219bn

Lost revenue from
patent expiries,
2007-2017

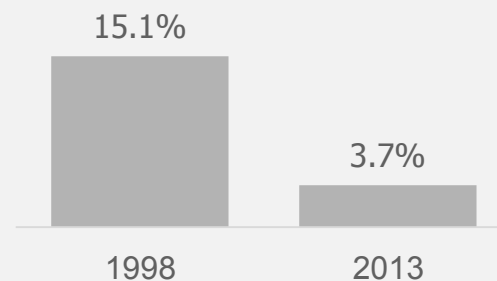
Source: Frost & Sullivan, IMS

Increasing cost of developing a drug
\$bn



Source: Tufts Center for Study of Drug Development

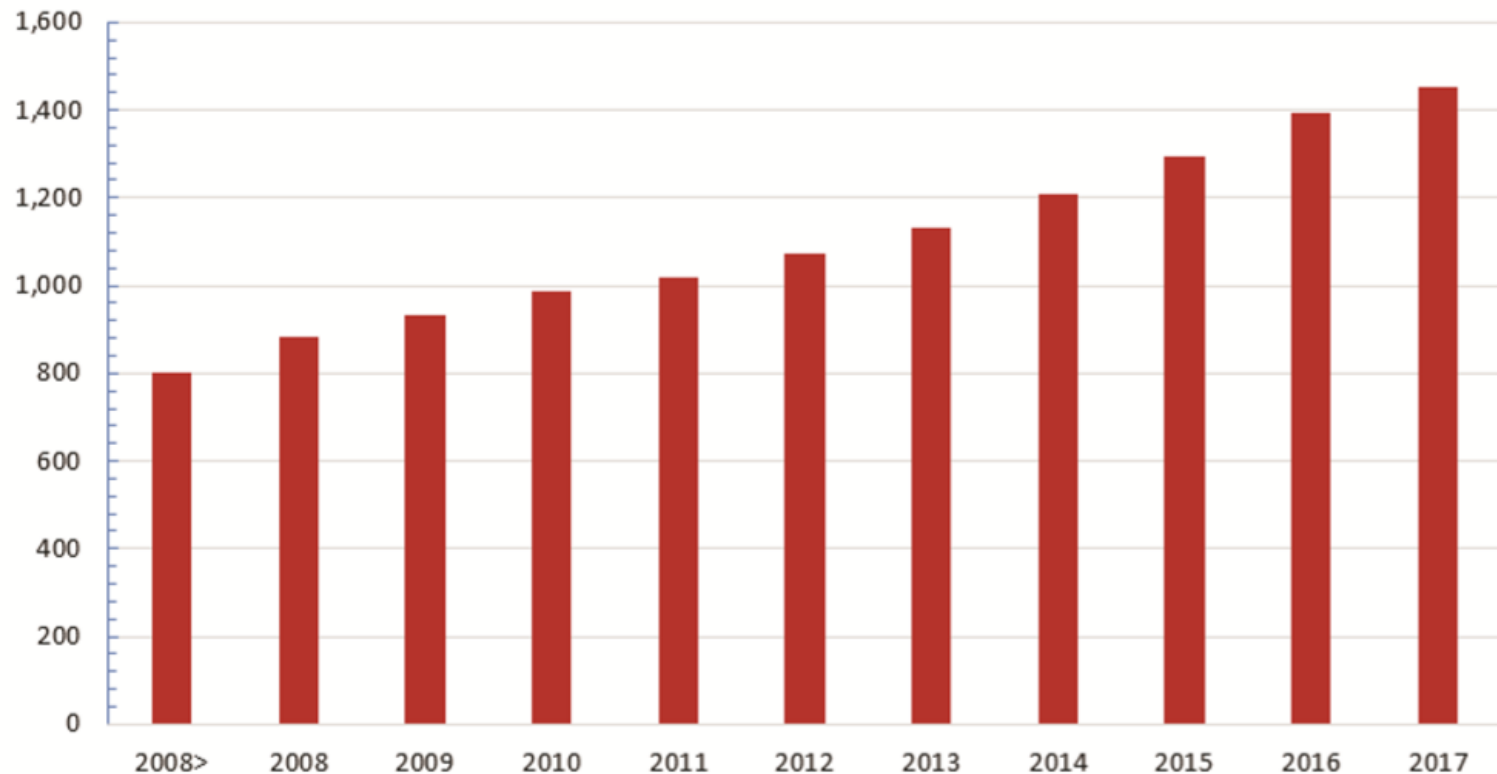
Declining pharma productivity
Real economic returns of R&D spend



Source: SRR Health Hidden Pipeline Analysis, Bioworld

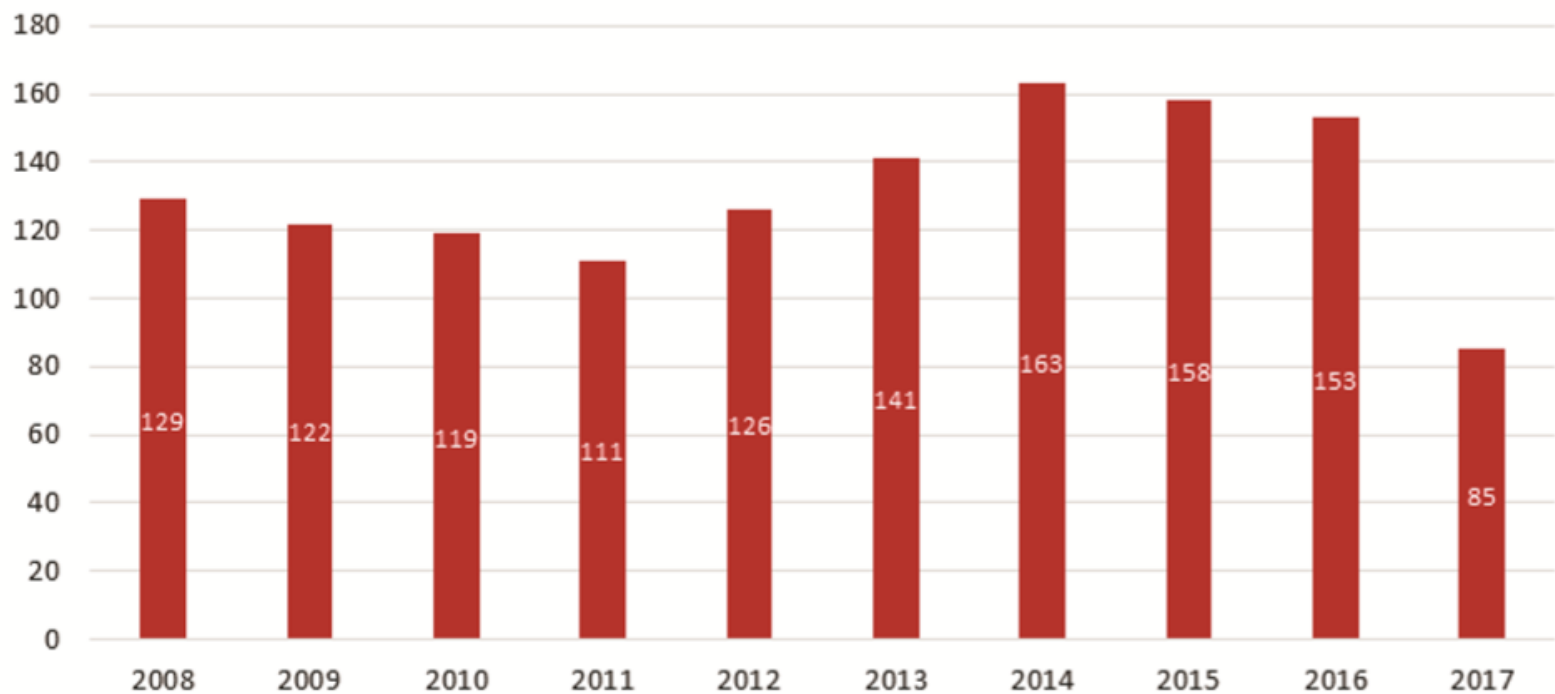
Israel – Life Science Industry

Cumulative number of active life science companies



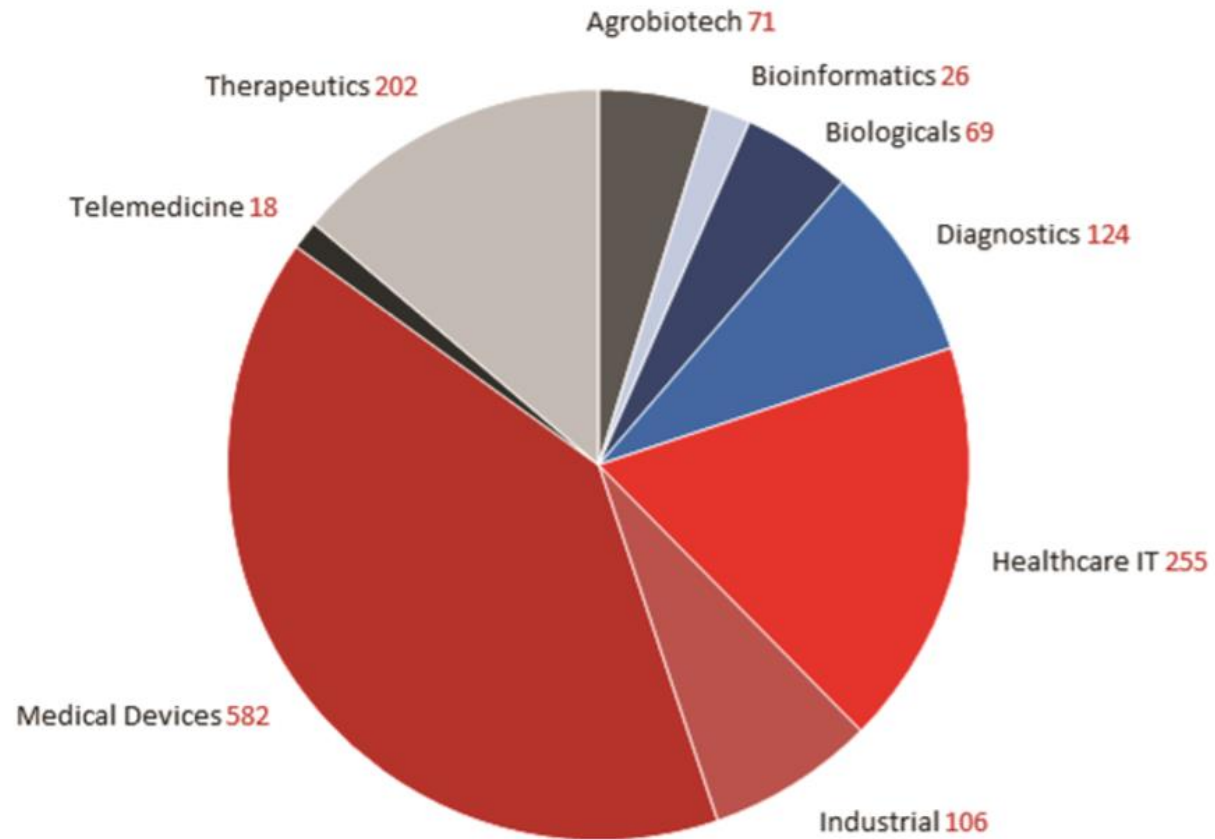
Source: IATI, IVC-Online Database

Number of Israeli life sciences companies established (2008-2017)



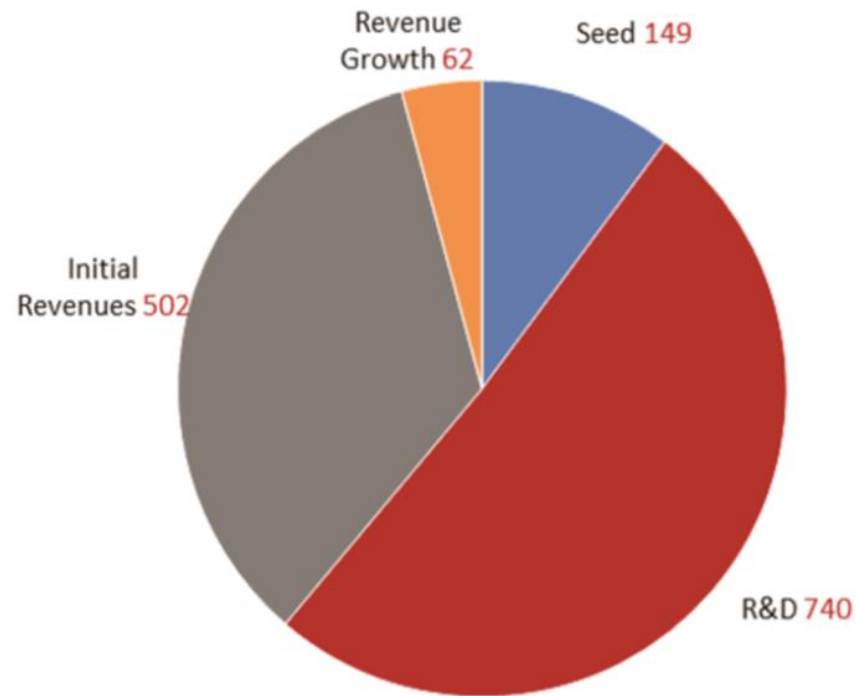
Source: IATI, IVC-Online Database

Israel Life Sciences Industry Sub-Sectors



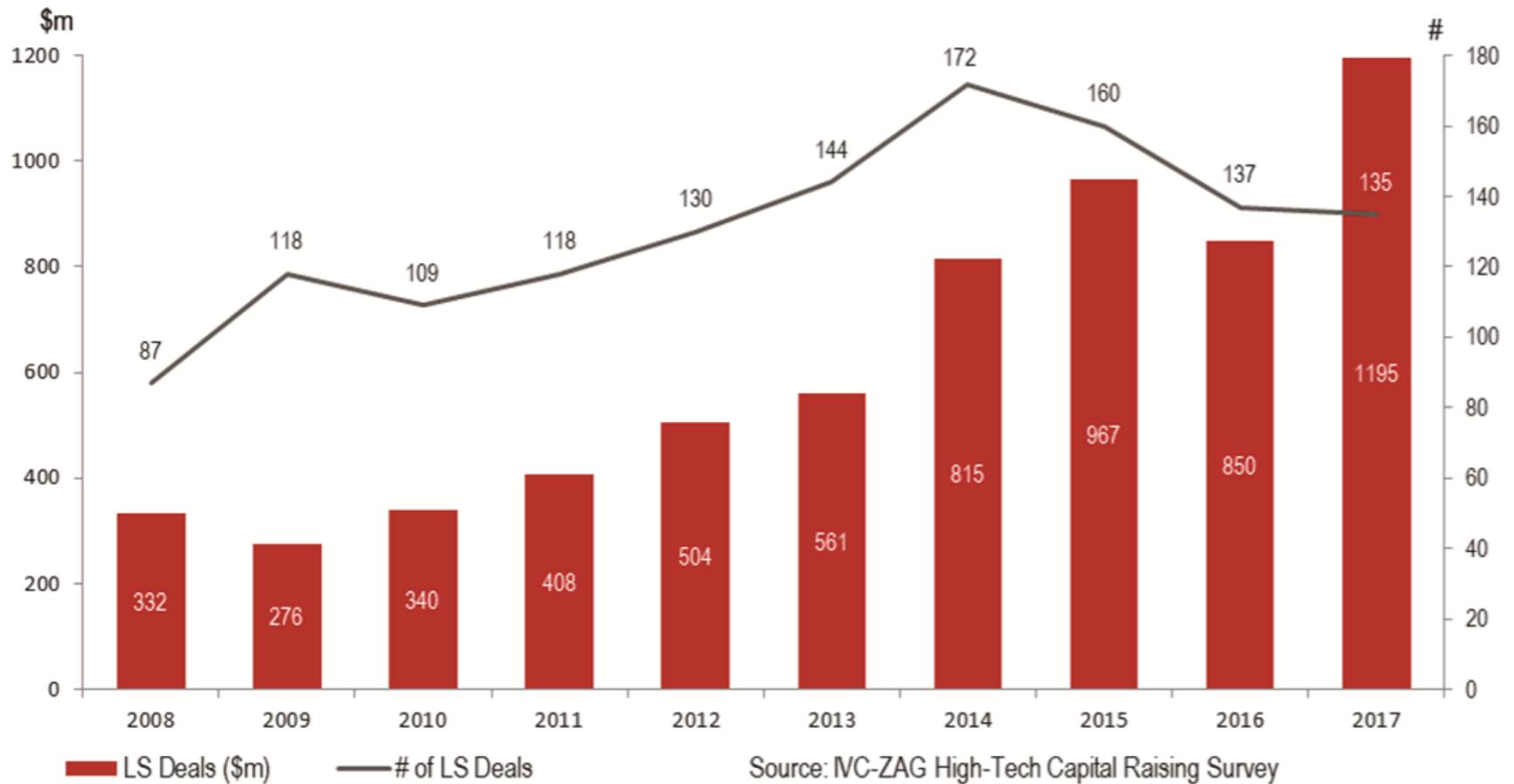
Source: IATI, IVC-ZAG High-Tech Capital Raising Survey

Number of Active Israeli Life Science Companies by Stage

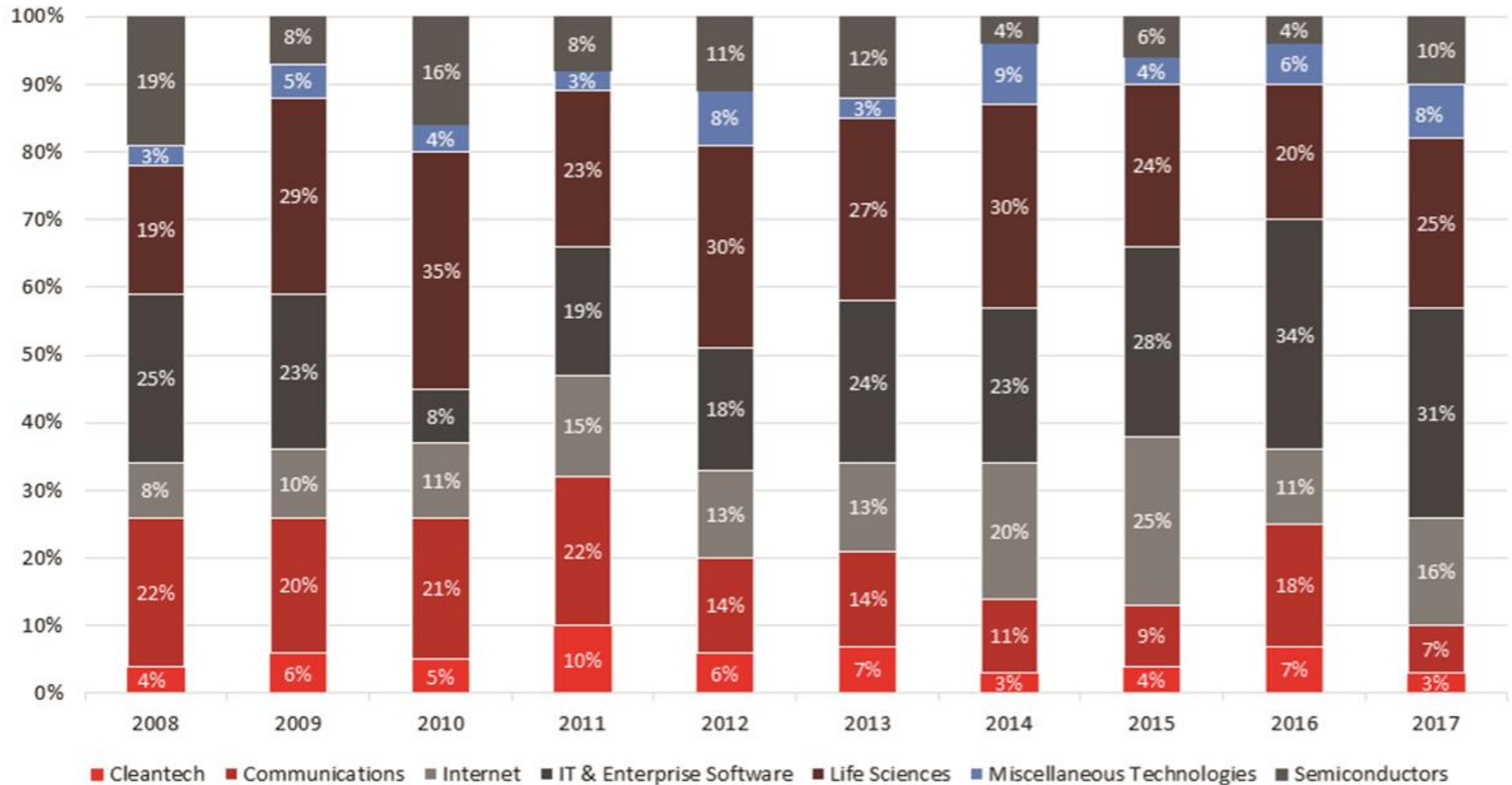


Source: IATI, IVC-Online Database

Capital Raised by Israeli Life Sciences Companies (2008-2017) - \$ millions

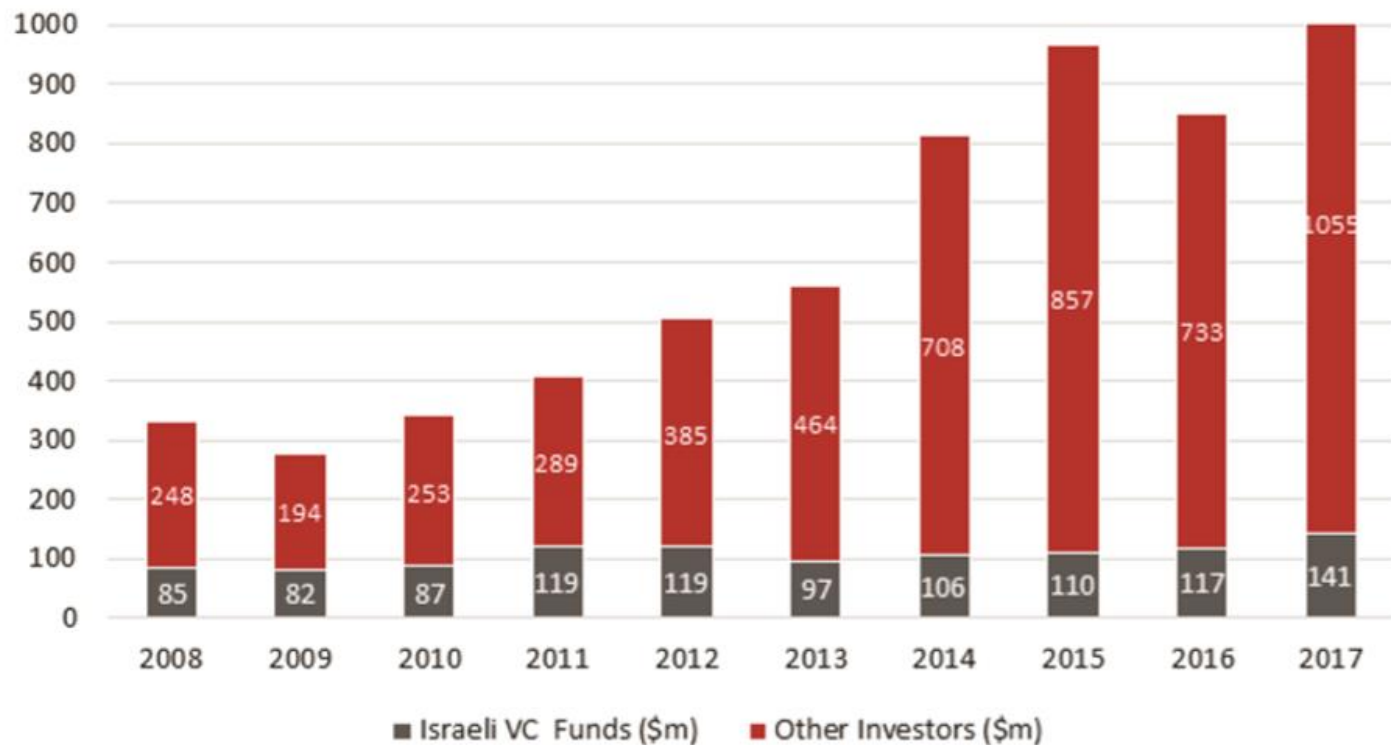


Capital raised by Israeli High-Tech Companies, by Sector (2008-2017)



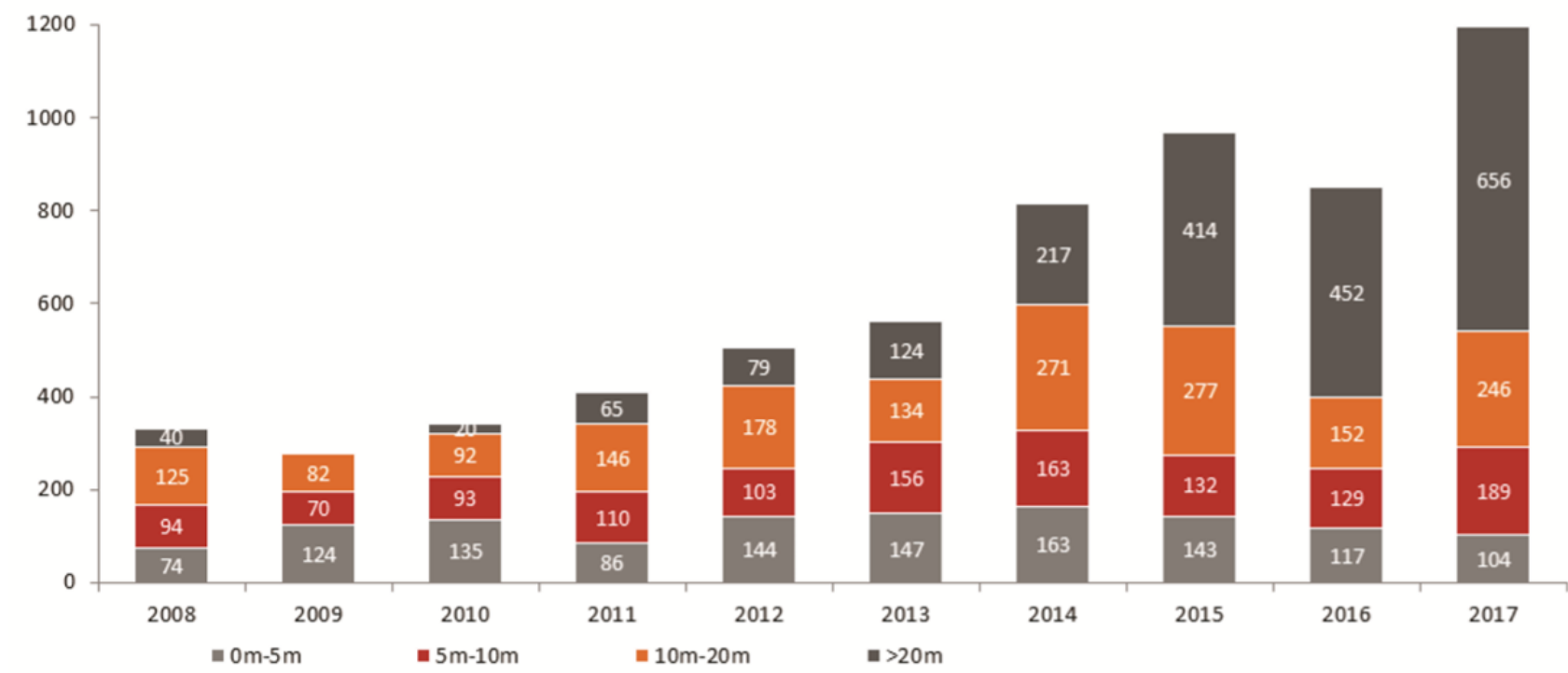
Source: IVC-ZAG High-Tech Capital Raising Survey

Capital Invested by Israeli VC Funds vs. Other Investors in Life Sciences



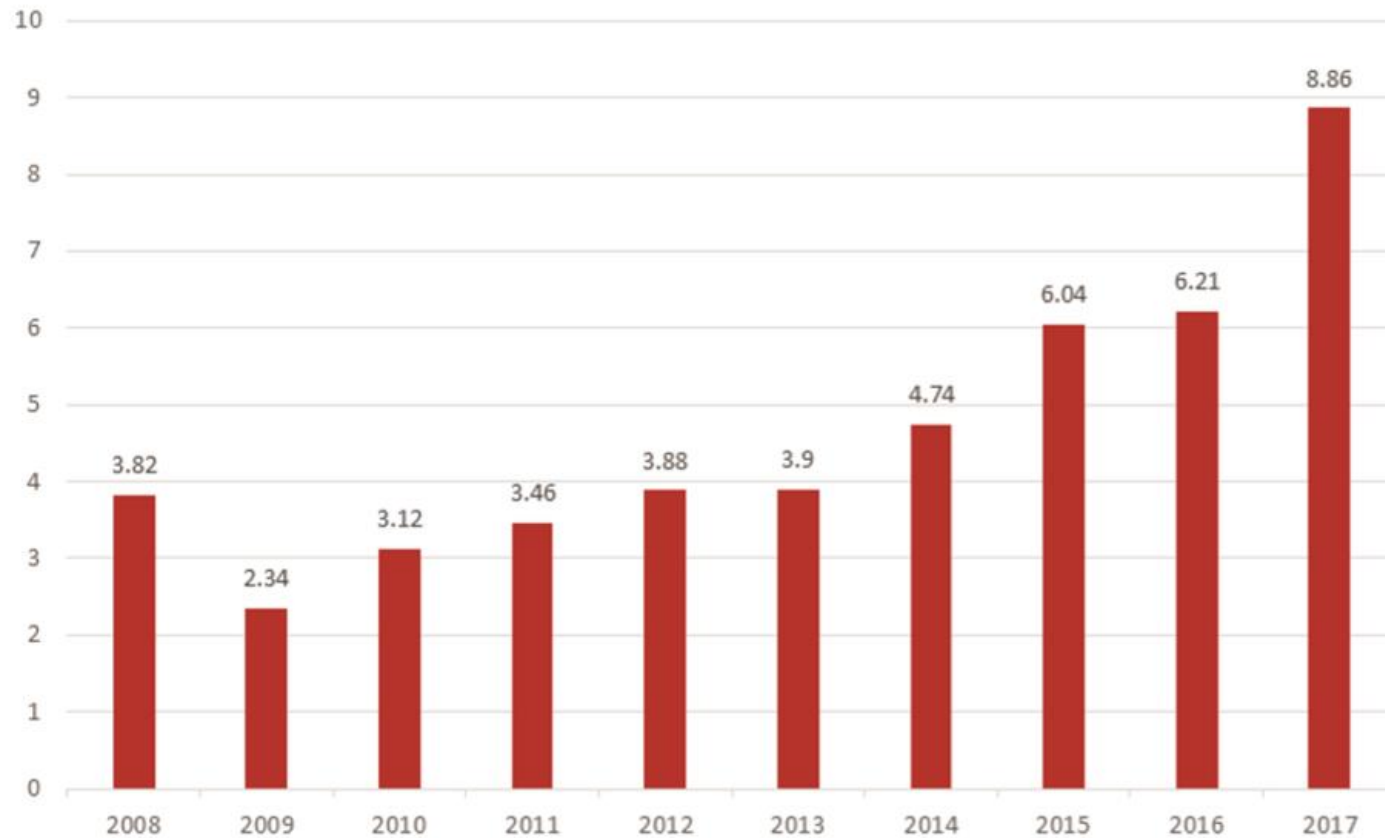
Source: IVC-ZAG High-Tech Capital Raising Survey

Capital Raised by Israeli Life Sciences Companies by Deal Size (2008-2017)



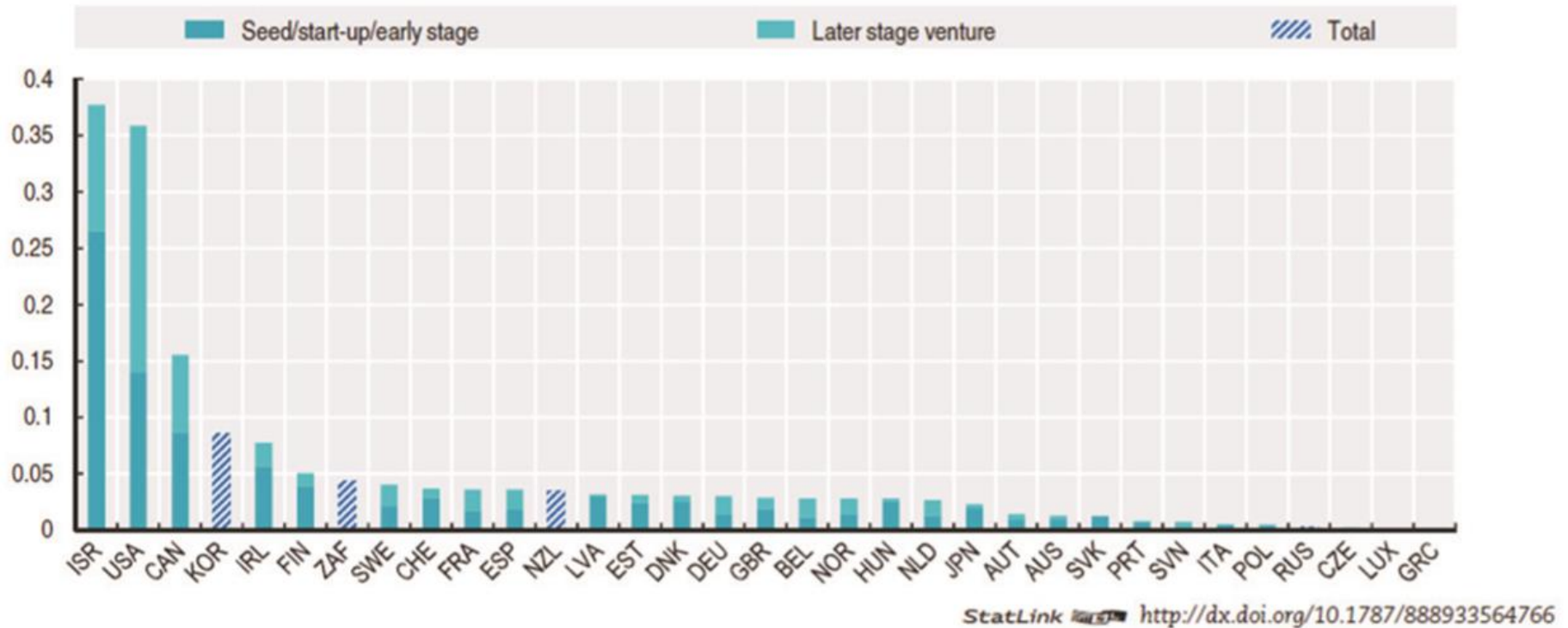
Source: IVC-ZAG High-Tech Capital Raising Survey

Average Deal Size in Israel Life Sciences Financing (2008-2017) - \$ millions



Source: IVC-ZAG High-Tech Capital Raising Survey

Expenditure by VC as a % of GDP (2016, or latest available year)



Source: Entrepreneurship at a Glance 2017, OECD

Diverse clinical assets, compelling modalities and indications

modalities

49%

Israel

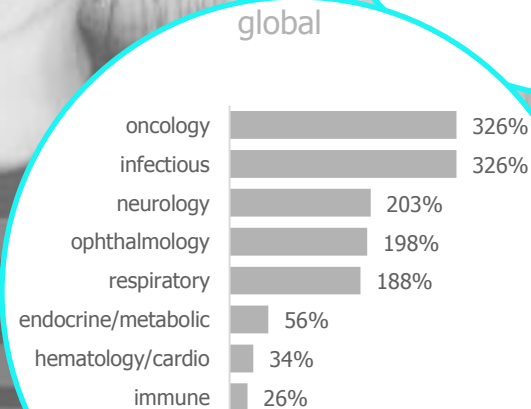
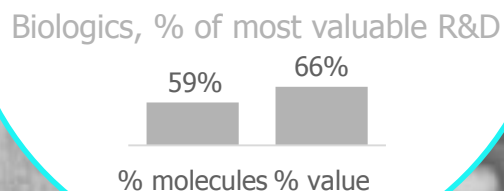
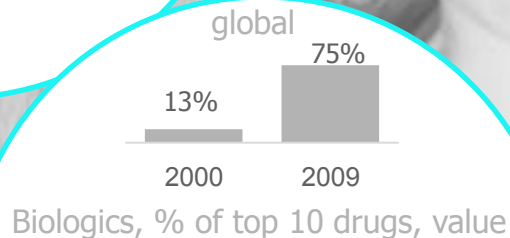
Protein, cell therapy,
antibodies, gene
therapy, peptides,
vaccines

indications

62%

Israel

Cancer/
immunotherapy,
CNS,
Cardiometabolic



Revenue growth by
indication, 2013-2020

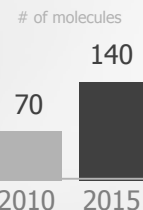
The Biotech industry is coming of age

~1,400 Israeli lifescience companies, ~50-50 biotech/other

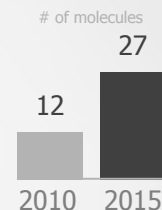
More drugs in clinic

167
drugs in clinic
+103% vs 2010

+100%
phase 1/2 vs 2010



+125%
Phase 3 vs 2010



Attractive
science

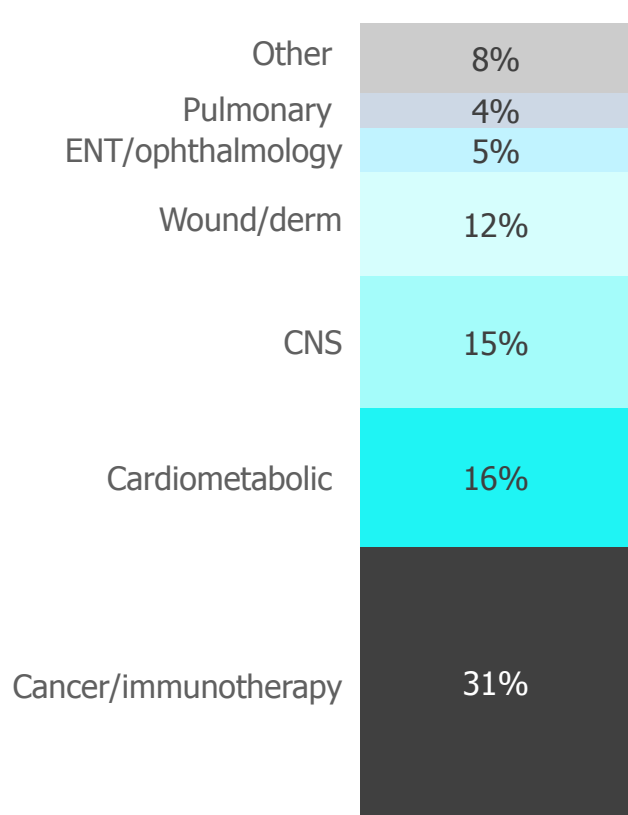
62%
of clinical assets in
cancer/
immunotherapy,
CNS, cardiometabolic

49%
Of clinical assets in
Protein, cell therapy,
antibodies, gene
therapy, peptides,
vaccines

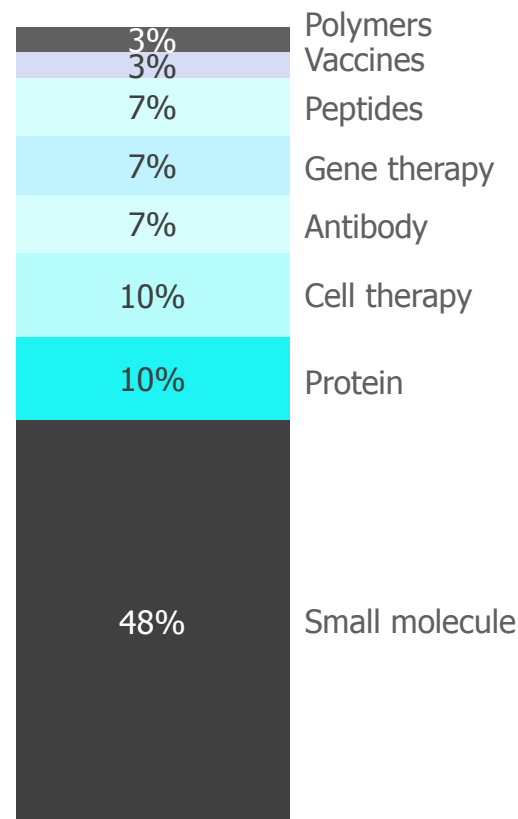
Addressing
severe unmet
needs
e.g.
Atox (flesh eating
bacteria),
cCAM (cancer
immunotherapy)

Source: company filings, OrbiMed database

Diverse clinical assets



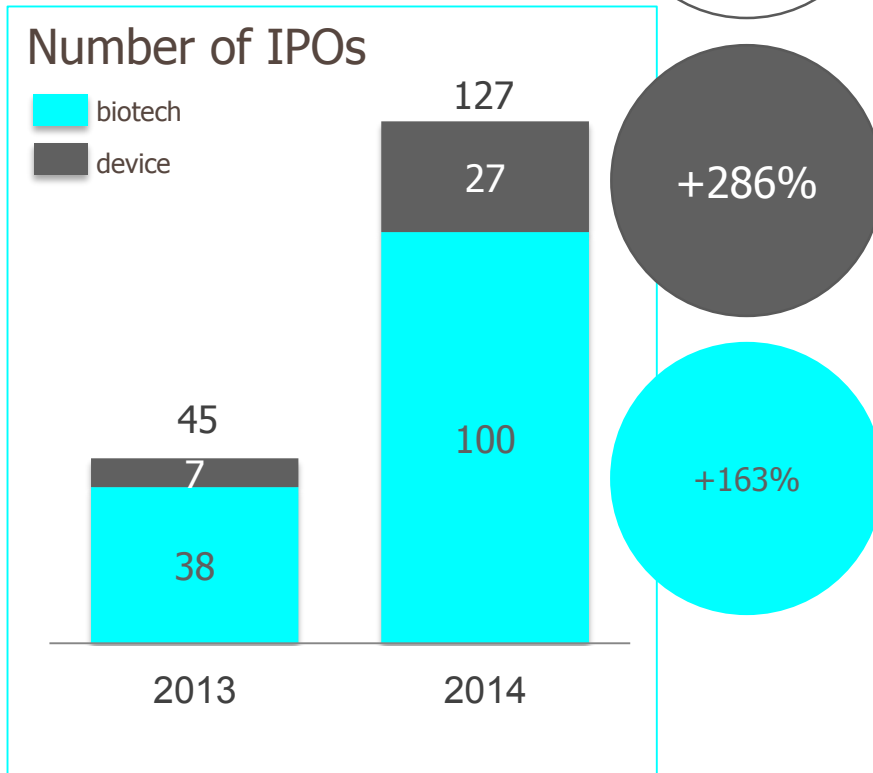
indications



modalities

Time for a device comeback?

Device: High IPO growth, albeit from a low base



Source: Biocentury, company filings

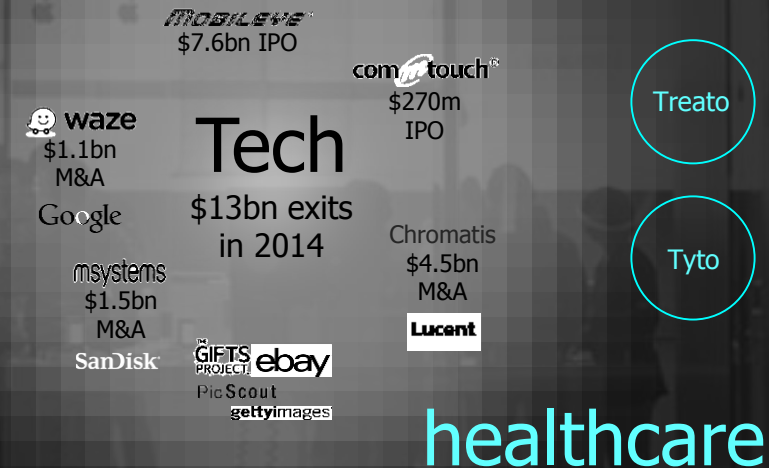
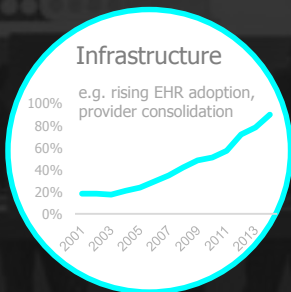
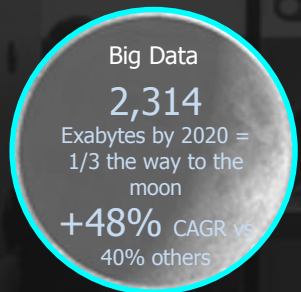
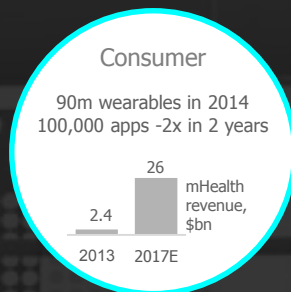
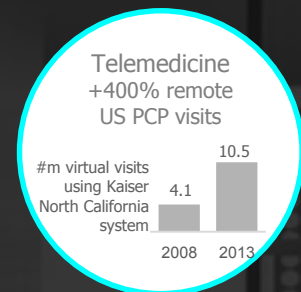
Industry consolidation/divestitures -> need to feed the machine



Israel: Tech + Healthcare = digital health opportunity

Digital health opportunity
Consumerism. Big data. Telemedicine. Infrastructure.

Israel has a robust tech industry
Tech entrepreneurs pivoting into healthcare



What is “Hot” ??



Oncology

Platform:
Gene
Therapy

Metabolic/
Fibrosis

Robotics

CNS

GI

Orphan/Rare
Diseases

HCIT

Ophthalmology



OrbiMed Israel Partners

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Endnotes

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