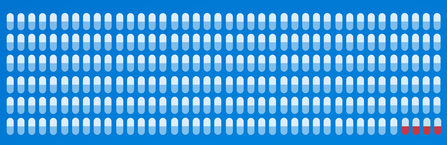
Fluidic Analytics

Researching therapies for Alzheimer's Disease

01

Why it is so important to look in the right place

Since 1998 there has been 146 failed drugs and only 4 that have been successful in treating Alzheimer's disease[1]



"One of the biggest issues in coming up with effective therapies for Alzheimer's disease is that we really don't know critical elements [underlying] the mechanism [of the disease] in most people with the illness." – David Geldmacher[2]

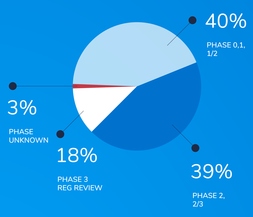
02

Breaking down the failures

A break down of unsuccessful drugs by cost[3]

Stage of process	Duration (months)	Cost (bilions)($)
Preclinical	50.1	1.65
Phase I	12.8	1.19
Phase II	27.7	1.04
Phase III	50.9	1.79
FDA	18	0.02
Total	**13.3 years**	**5.69**

A break down of unsuccessful drugs by phase[4]



03

Success rate for Alzheimer's Disease

0.4%
The success rate for Alzheimer's disease trials between 2002 and 2012

7.3%
Likelihood of a drug being brought to market from phase 1

15.3%
For drugs that target other therapy areas, the likelihood of a drug being brought from phase one to market, is double that of AD [5]

04

The cost of Alzheimer's disease

WHAT DOES IT COST?

US$ 818 bilion
Estimated cost to society in 2015

US$ 2 trilion
Estimated cost to society in 2030

In 2018, caregivers of people with Alzheimer's or other dementias provided an estimated 18.5 billion hours of informal (that is, unpaid) assistance, a contribution to the nation valued at $233.9 billion. This is approximately 46 percent of the net value of Walmart's total revenue in 2018 ($500.3 billion)[7]

05

Looking to the future

WHO IS AFFECTED?

One case every 3 s.
Nearly 10 million new cases every year

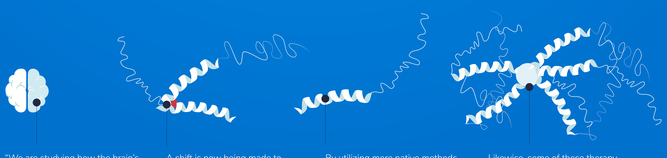
21%
of women aged 65 are affected.

12%
of men aged 65 are affected.

285% increase
The world's population of AD dementia will increase from 35 million to an astonishing 135 million by 2050[6]

06

The light at the end of the tunnel?



"We are studying how the brain's immune system reacts to Alzheimer's pathology so that we can study experimental immune-modifying therapies in a controlled way" [1]

A shift is now being made to investigate novel binding mechanisms between proteins derived from stem cell differentiated neurons and potential drug candidates.[3]

By utilizing more native methods of measuring protein-compound interactions, fewer drugs would have failed in the later stages of clinical trials. Saving millions of dollars in drug research.

Likewise, some of these therapy candidates could have been ruled out earlier and would have saved millions of dollars and saved time.

REFERENCES

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3. Cummings, Jeffrey, Carl Reiber, and Ranesh Kumar. "The price of progress: Funding and financing Alzheimer's disease drug development." Alzheimer's & Dementia: Translational Research & Clinical Interventions 4 (2018): 330-343.
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7. Gaugler, Joseph, et al. "2019 Alzheimer's disease facts and figures." ALZHEIMER'S & DEMENTIA 15.3 (2019): 321-387.