CLINICAL TRIAL DATA SHARING AND THE PATH TO MARKET

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Sharing Clinical Trial Data

MAXIMIZING BENEFITS, MINIMIZING RISK

Key IP challenges (and opportunities)

- Confidential commercial information in clinical data/CSRs
  - Potential competitive disadvantage to firm b/c of release
  - Public domain release may compromise patents for commercialization
- CSRs used to support marketing authorization (MA) in jurisdictions w/out data exclusivity
- "Open innovation" yields opportunities for new (potentially lucrative) findings

IP Strategies in Different Contexts

- Approved drugs
  - Voluntary sharing (e.g. Clinical Study Data Request)
  - Mandated sharing (e.g. EMA policy)
- Data sharing associated with abandoned drugs (e.g. NCATS)

Clinical Data Sharing Repository

Data Sharing Agreement

- All data provided in connection with agreement is "confidential information"
  - No transfer to third parties without approval
- Must use data according to proposal
- W/r/t "new IP," a right of first refusal to exclusive license (for each sponsor)

Features

- Strict contractual protection of CCI (never enters public domain)
- Because all data remain on “Access System,” cannot be used to support MAs

New IP

- New uses
- “More eyes” on problem should enhance progress
- *Some* limitations of new use patents on approved drugs
  - If composition-of-matter patent has expired, generic can be used off-label for new use (e.g. Rai 2012)

Mandatory disclosure

- EMA October 2014 policy (effective 1/1/2015)
- Significantly more public than CSDR model
  - On-screen access for “any user”
  - Downloadable CSRs for “identified users”

EMA on CCI

- “Any information . . . not in the public domain or publicly available” and where disclosure undermines legitimate economic interest” of marketing authorization holder (MAH)
- MAH must make case for redaction to regulator

EMA, cont'd

- Policy specifically allows redaction of exploratory endpoints (and efficacy and safety variables in support thereof) – mentions patent issue
  - E.g. *MEHL/Biophile Int'l Corp. v. Milgraum*, 192 F.3d 1362 (1999)
    - Article describing method of skin treatment that noted disruption of hair follicles enough to block patent on hair depilation use
  - Going forward, firms shouldn't include exploratory endpoints (or other CCI)

CSRs, marketing authorization

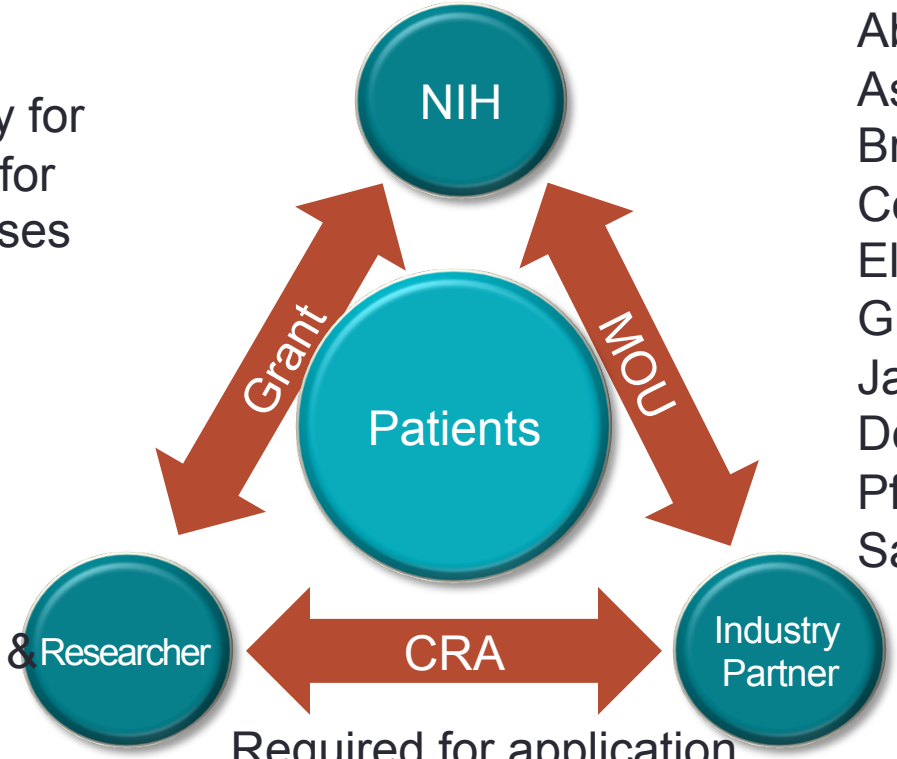
- EMA Terms of Use
  - “May not be used to support MA or variation to a MA nor to make any unfair commercial use of the clinical reports.”
  - Watermark
  - Third party right to enforce (UK law applies)
  - Will it work?

Abandoned drugs (and associated data)

- Arguably biggest IP opportunity in data sharing
- Only ~10% of compounds entering Phase 2 testing pass phase 3
- New uses for “de-risked” molecules
- For molecules that have never been approved, no possibility of skinny labeling
  - Use patent as strong as composition of matter patent (Rai and Rice 2014)

Abandoned Drugs: NCATS 2012, 2014

Agents
Most Agents ready for Phase 2a studies for unexplored new uses



Companies
AbbVie (formerly Abbott)
AstraZeneca
Bristol-Myers Squibb Company
Eli Lilly and Company
GlaxoSmithKline
Janssen Research and Development, LLC
Pfizer
Sanofi

Propose Phase 1b & 2a trial

Required for application submission

Repurposed experimental cancer drug restores brain function in mouse models of Alzheimer's disease

NIH-supported research enables clinical trial to explore treatment for most common form of dementia

National Center for Advancing Translational Sciences (NCATS)

Contact

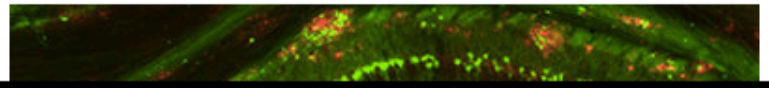
NCATS Office of Communications
301-435-0888

Scientists have found that a compound originally developed as a cancer therapy potentially could be used to treat Alzheimer's disease. The team demonstrated that the drug, saracatinib, restores memory loss and reverses brain problems in mouse models of Alzheimer's, and now the researchers are testing saracatinib's effectiveness in humans. The study was funded by the National Institutes of Health as part of an innovative crowdsourcing initiative to repurpose experimental drugs.

Researchers from the Yale University School of Medicine, New Haven, Connecticut, conducted the animal study, published for early view on March 21 in the Annals of Neurology, with support from the National Center for Advancing Translational Sciences (NCATS) through its Discovering New Therapeutic Uses for Existing Molecules (New Therapeutic Uses) program. Launched in May 2012, this program matches scientists with a selection of pharmaceutical industry assets that have undergone significant research and development by industry, including safety testing in humans, to test potential ideas for new therapeutic uses.

Alzheimer's disease is the most common form of dementia, a group of disorders that cause progressive loss of memory and other mental processes. An estimated 5 million Americans have Alzheimer's disease, which causes clumps of amyloid beta protein to build up in the brain, and these protein clusters damage and ultimately kill brain cells (neurons). Alzheimer's disease also leads to loss of synapses, which are the spaces between neurons through which the cells talk to each other and form memories. Current Alzheimer's drug therapies can only ease symptoms without stopping disease progression. New treatments are needed that can halt the condition by targeting its underlying mechanisms.

Through NCATS' New Therapeutic Uses program, Yale neurobiology researcher, neurologist and



References

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- Rai, A.K. and Rice, G. 2014. Use Patents Can Be Useful: The Case of Rescued Drugs. *Science Translational Medicine* 6 (248): 248fs230.