

The Wilson
Center

TRACKING THE GROWTH OF SYNTHETIC BIOLOGY: FINDINGS FOR 2013



Major Findings:

- The number of entities conducting research in synthetic biology increased significantly between 2009 and 2013, resulting in a total of 508 unique entities in the 2013 inventory.^{1 2 3}
- The number of companies has come into closer parity with the number of universities. (See Fig. 1)
 - The number of companies more than tripled, increasing from 61 to 192.
 - The growth in the number of universities was slower, increasing from 127 to 204.
- The increase in the number of synthetic biology companies was greater in Europe than in the United States (See Fig. 4 and Fig. 6).
- A plurality of manufacturers involved in synthetic biology research and development is focusing on specialty/fine chemical, medical and biofuels applications. (See Fig. 2 and Fig. 3)
- The number of policy centers working on synthetic biology issues increased from two to 17.

Findings for the United States:

- In all, 40 of 50 states and the District of Columbia were found to contain at least one company, university, research institution, government lab, military lab or community lab space conducting research in synthetic biology. (See Fig. 5)
- California had the most entries (75). Massachusetts (39), New York (20), and Texas (16) were also found to have a significant level of activity. (See Fig. 5)

Findings for Europe:

- In all, 17 countries were found to contain at least one company, university, research institution, government lab, hybrid research institution/policy center or community lab space conducting research in synthetic biology. (See Fig. 7)
- The United Kingdom and Germany had the most entries with 37 and 27, respectively. Switzerland was third with 11 entries. (See Fig. 7)

¹ Categories used are: Company, University, Research Institution, Government Lab, Military Lab, Policy and Governance, Hybrid Research Institution/Policy Center and Community Lab Space. (Three of these categories were not tracked in 2009: Military Lab, Hybrid Research Institution/Policy Center and Community Lab Space).

² The Wilson Center added 131 companies, 77 universities, 33 research institutions, four government labs, four military labs, 15 policy and governance centers, one hybrid research institution/policy centers and 13 community lab spaces worldwide to the map inventory.

³ The map lists an additional 139 principal investigators affiliated with universities and research institutions (non-unique entries).

Findings for Asia and Oceania:

- Asia and Oceania were not tracked in the 2009 map inventory.
- In all, six countries were found to contain at least one company, university or research institution conducting research in synthetic biology. (See Fig. 9)
- Japan and China had the most entries with 15 and 11, respectively. (See Fig. 9)

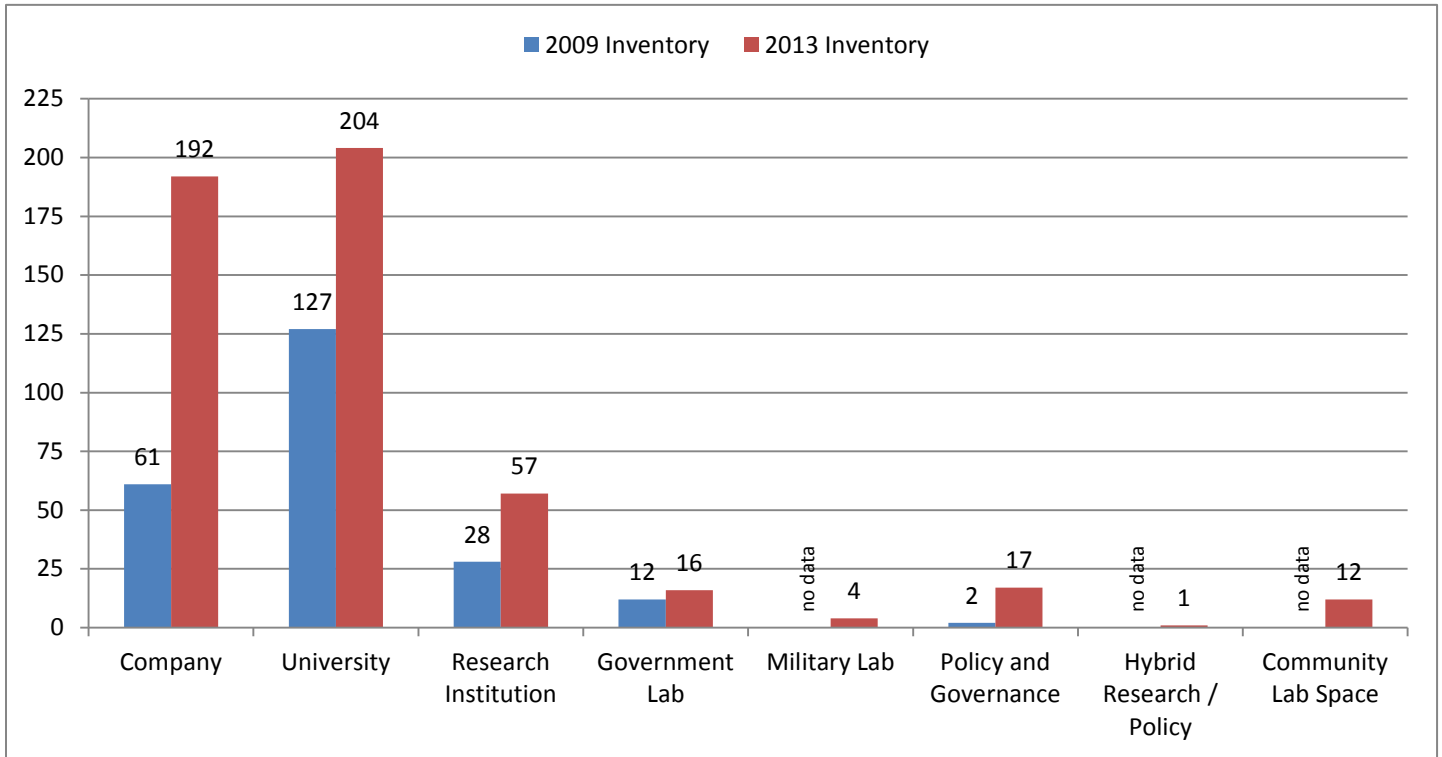
Findings for the Private Sector:

- Since 2009, six of the 61 companies tracked (9.8 percent) were acquired by other companies, closed their doors or can no longer be identified.⁴
- An additional 11 companies that were tracked between the release of the original inventory and the 2013 inventory were acquired by other companies, closed their doors or can no longer be identified.⁵

⁴ Anagen Technologies (website is no longer maintained), Codon Devices (closed doors in 2009), EngeneOS (website is no longer maintained), EraGen Biosciences (acquired by Luminex Corporation in 2011), Genencor (acquired by DuPont in 2011) and GreenFuel Technologies Corporation (closed doors in 2009)

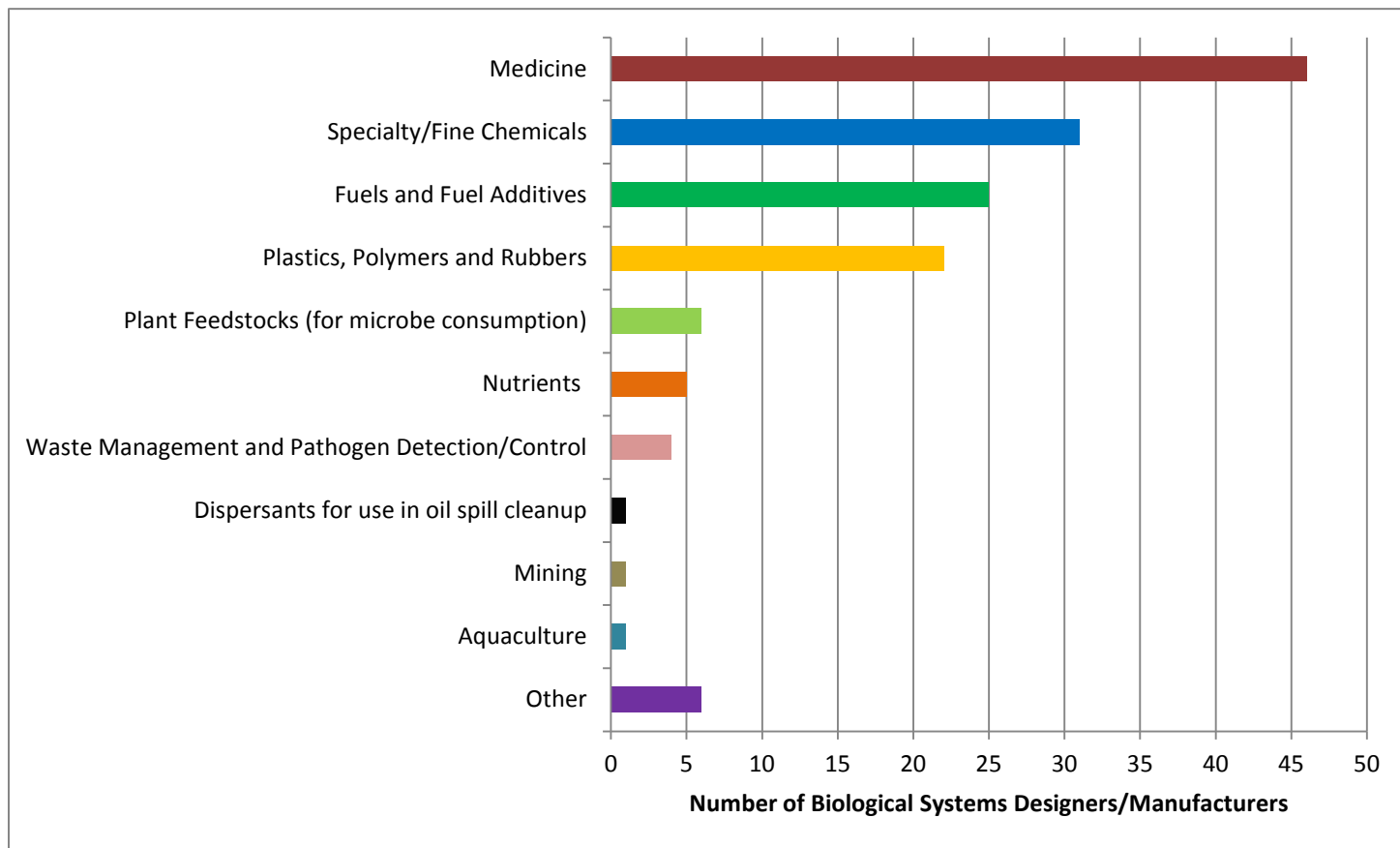
⁵ Archemix Therapeutics (acquired by Baxter in 2010), Bioteca Technology (website is no longer maintained), Cellicon Biotechnologies (website is no longer maintained), GeneArt AG (acquired by Life Technologies in 2010), Heurisko SAS (website is no longer maintained), Human Genome Sciences (acquired by GlaxoSmithKline in 2012), Medarex (acquired by Bristol-Meyers Squibb in 2009), Oscient Pharmaceuticals (filed for bankruptcy in 2009), PSF Biotech AG (website is no longer maintained), Vion Pharmaceuticals (filed for bankruptcy in 2010 and sold assets) and Xantos Biomedicine AG (website is no longer maintained)

Fig 1. Entities Conducting Research in Synthetic Biology, Worldwide



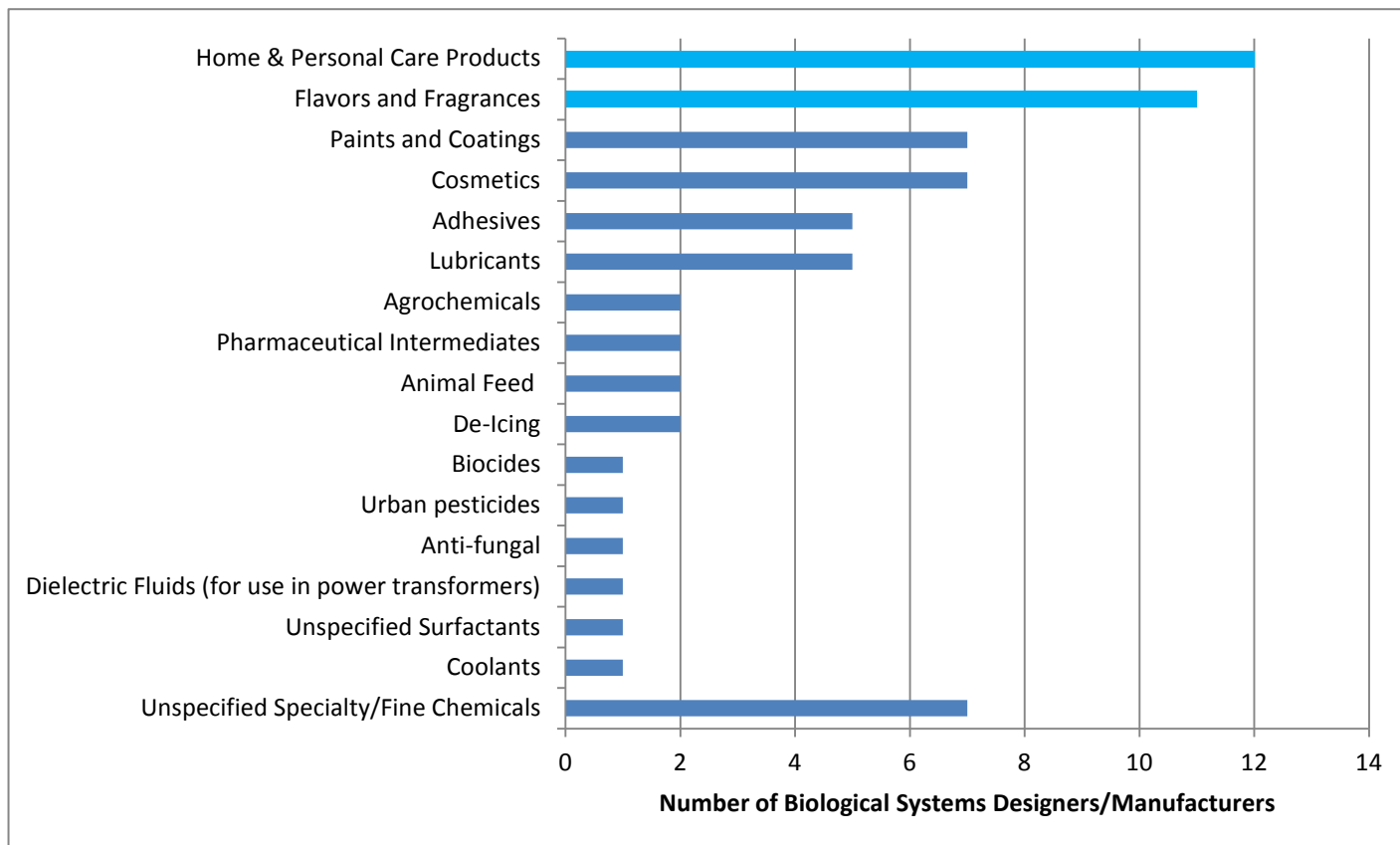
Note: The categories "Military Lab," "Hybrid Research Institution/Policy Center" and "Community Lab Space" were not tracked in 2009.

Fig. 2. Application Focus of Biological Systems Designers/Manufacturers Conducting Synthetic Biology Research, Worldwide



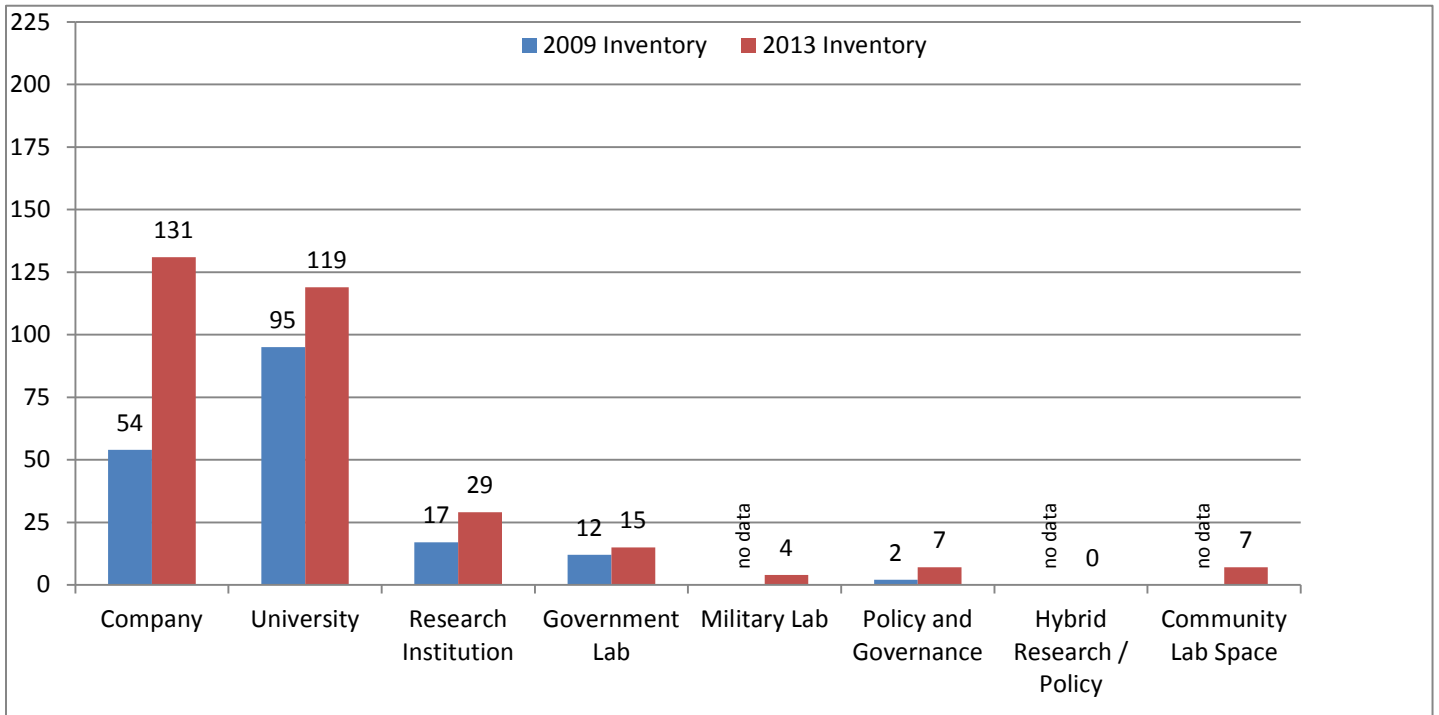
Note: This chart is based on data collected for 108 designers/manufacturers. Many of them are pursuing multiple applications and may be counted more than once.

Fig. 3. Breakdown of Specialty/Fine Chemical Applications, Worldwide



Note: This chart is based on data collected for 31 designers/manufacturers that say they are focusing on specialty/fine chemical applications. Many of them are pursuing multiple applications and may be counted more than once.

Fig. 4. Entities Conducting Research in Synthetic Biology in the United States



Note: The categories "Military Lab," "Hybrid Research Institution/Policy Center" and "Community Lab Space" were not tracked in 2009.

Fig. 5. Number of Companies, Universities, Research Institutions, Government Labs and Military Labs Conducting Research in Synthetic Biology in Each U.S. State

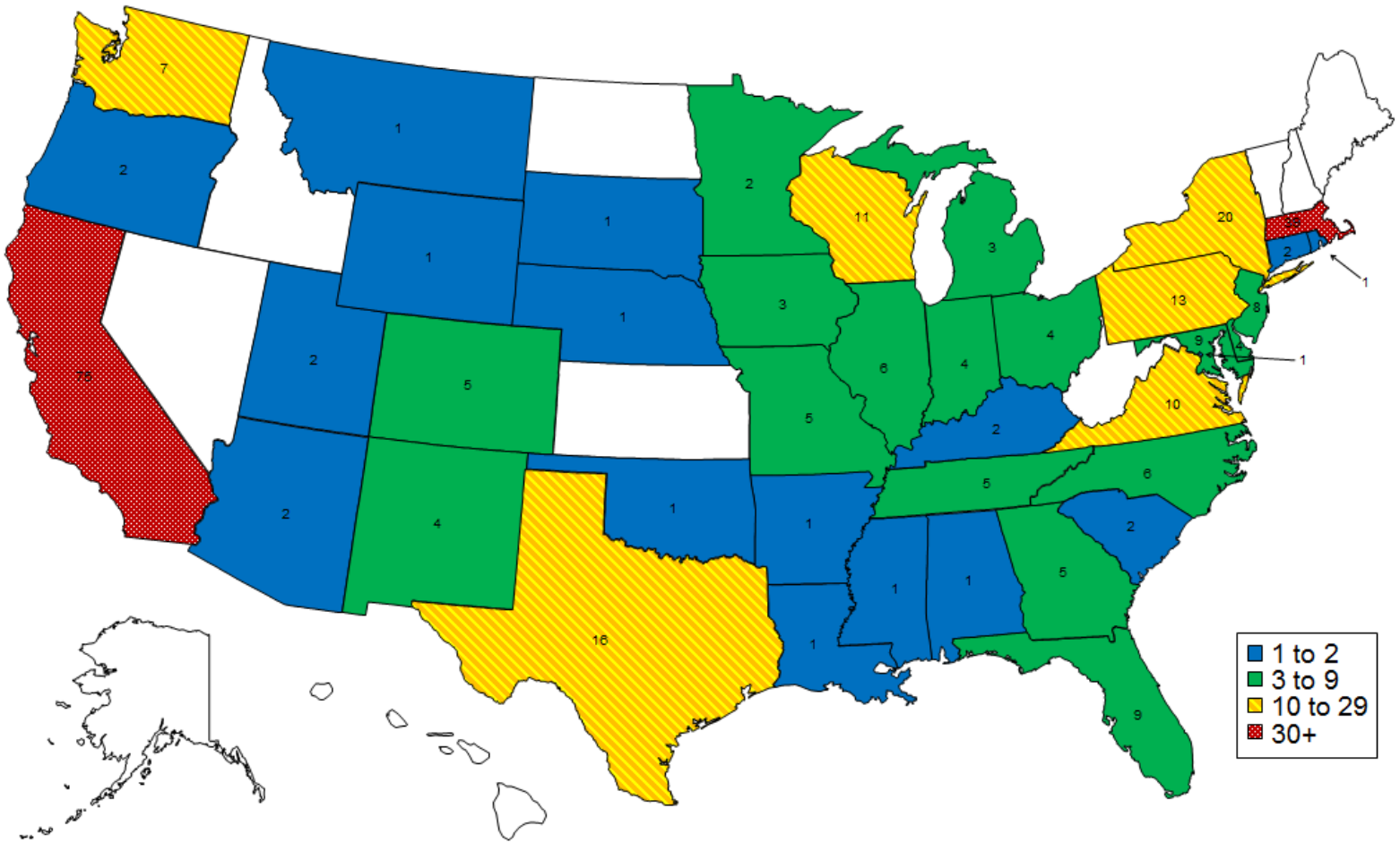
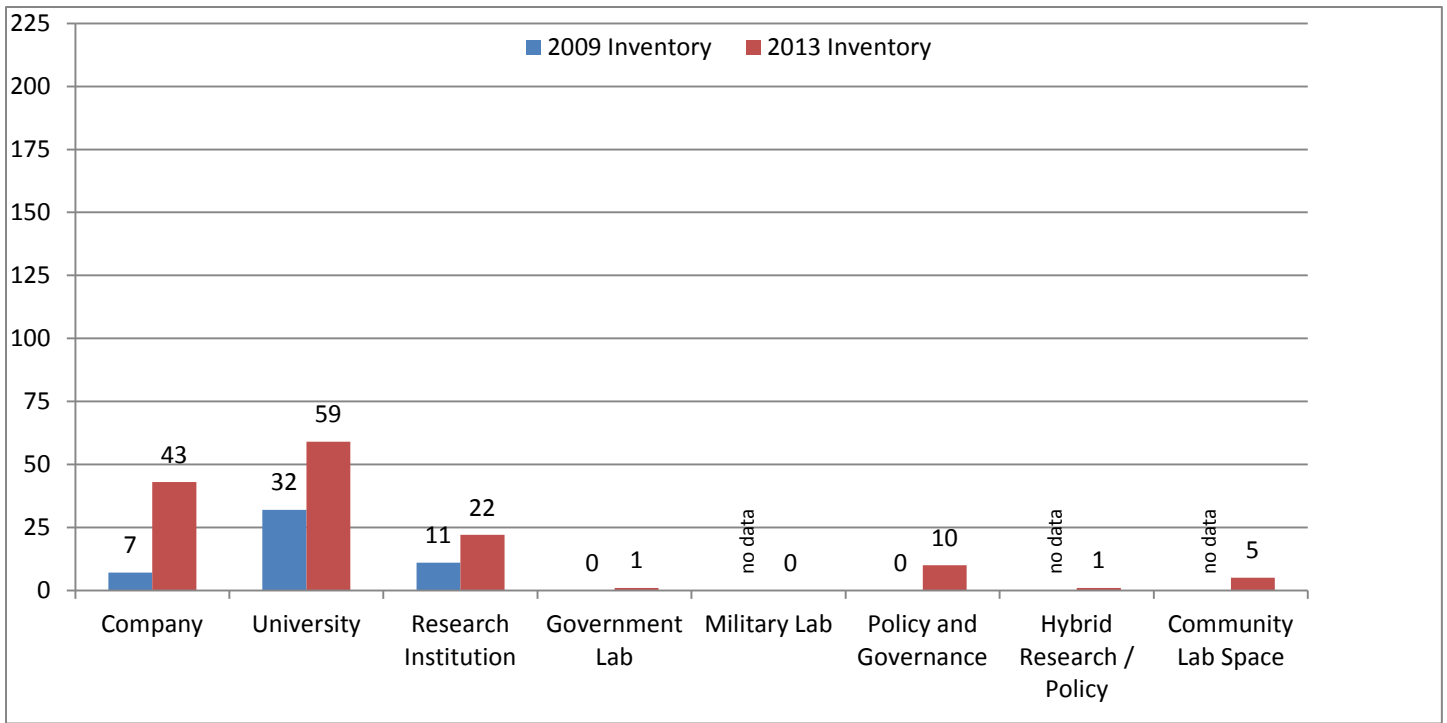


Fig. 6. Entities Conducting Research in Synthetic Biology in Europe



Note: The categories "Military Lab," "Hybrid Research Institution/Policy Center" and "Community Lab Space" were not tracked in 2009.

Fig. 7. Number of Companies, Universities, Research Institutions, Government Labs and Military Labs Conducting Research in Synthetic Biology in Each European Country

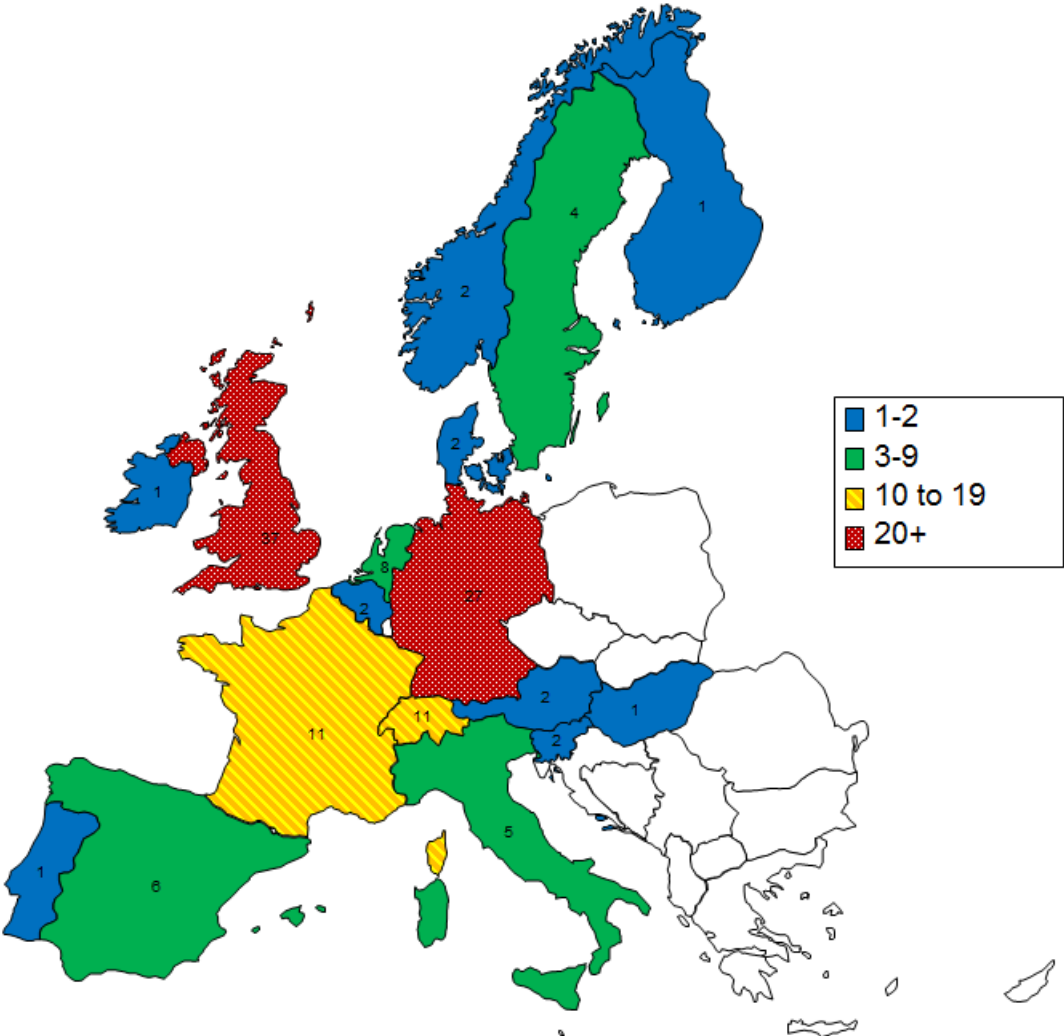
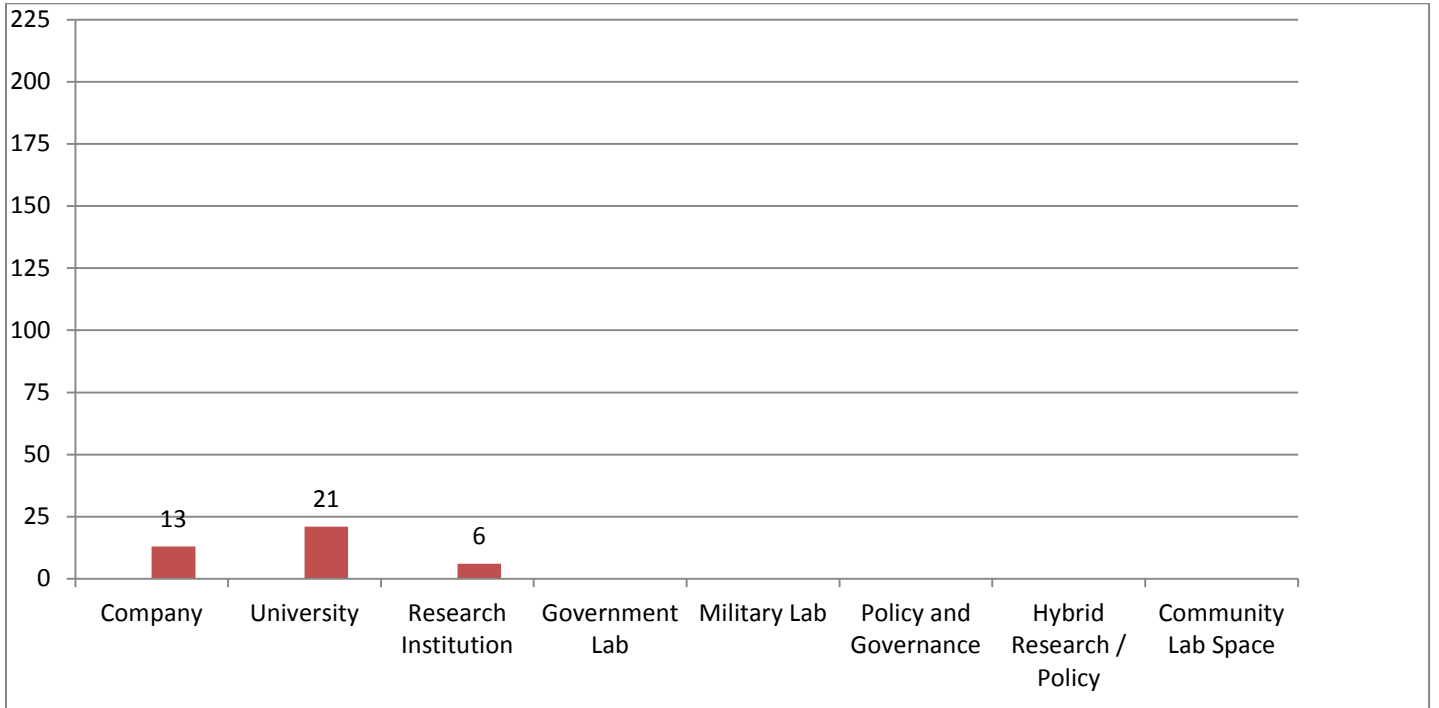


Fig. 8. Entities Conducting Research in Synthetic Biology in Asia/Oceania (2013)



Note: Asia/Oceania was not tracked in the 2009 inventory.

Fig. 9. Number of Companies, Universities, Research Institutions, Government Labs and Military Labs Conducting Research in Synthetic biology in Each Asian and Oceanic Country

