

companies which spent \$47,000 per employee. Traditional pharmaceutical companies spent only \$26,000 per employee.

Lacking product revenues to completely support their R & D efforts, financing demands and opportunities shape priorities. Early-stage companies burn start-up capital on R & D and building business infrastructure. Their additional capital needs drive them to seek other options of venture financing and corporate alliances. As companies mature, they approach the public equity market. Public equity (39 %) and strategic alliances (34 %) are expected to provide the bulk of biotech companies' capital needs during the next five years. Public financing reached the highest level in the history of biotechnology and strategic alliances likely to growth in high numbers in Europe, North America and Japan.

Tax incentives relevant to established companies commercializing biotechnology are those which stimulate R & D investments and those which encourage capital formation. Corporate tax rates are also important.

B. GOVERNMENT FUNDING OF RESEARCH

The ability of a company to produce significant innovations is related to the amount it spends on research and development. There is also evidence to suggest that a company's rate of productivity increase is also related to its research expenditure, but with a time lag³⁰.

The goal of basic research is to understand the phenomena under study without consideration for their ulterior commercial applications. Such a research is critical for advancing applied science or technology and eventually reaching a commercial target. Basic research is usually conducted at universities, and government research institutes.

On the other hand the objective of applied research, or technology development, is to gain knowledge needed to attain a process or product of social interest, and hence of commercial significance. Such a research is funded by both industry and governments, and it is carried out mostly in company labs and university labs. Applied research in biotechnology includes among others, the development of bioreactors, screening of microorganisms for potential products and, the understanding of the genetics and biochemical processes of industrially important microorganisms.

Some controversy exists over government support of basic and applied research. In general, it is accepted that the development of a technology within a country will progress faster if companies have access to local basic