



## Antibody-Based Therapy is Poised to be the Fastest-Growing Segment of New Cancer Drug Development

### Executive Summary:

- **Market growth of cancer drugs and treatments is significant.** In the last 20 years, we have seen tremendous changes in lifestyle, including decreased physical activity and poor diet, leading to an epidemic in obesity. Together with low fruit and vegetable intake as well as heavy tobacco and alcohol use, these behavioral and dietary changes have accounted for increased incidence of cancers. Cancer has also emerged as a leading cause of death worldwide and imposed the most devastating impact to the global economy among all diseases. Concurrently, there has been remarkable effort and substantial investment in technologies for detection and treatments of cancers. Global spending on cancer drugs and treatments grew at a compound annual growth rate (CAGR) of 5.4% between 2008 and 2013, with U.S. spending in this arena in 2010 and 2012 accounting for 38.5% and 40.5% of the total respectively. GMR Data estimates spending worldwide to reach US\$143.7 billion in 2023 from US\$91 billion in 2013.
- **Targeted therapies have become an attractive domain for R&D spending on cancers.** R&D within the cancer segment is undergoing considerable change, shifting from traditional treatments, such as chemotherapy and radiotherapy, to therapeutic approaches that specifically target cancer cells. Targeted cancer therapies have gained notable attention in recent years, leveraging increased understanding of the fundamental triggers and progression pathways of many cancers. Targeted therapies made up 46% of global cancer drug sales in 2013, a huge leap from 11% in 2003. We believe targeted therapies are likely to be administered to most cancer patients in the next five to 10 years.
- **Monoclonal antibody (“mAb”) sales are growing fast and new mAb may possibly become a major source of forthcoming blockbuster drugs.** The use of antibodies to target cancer cells (a form of targeted therapy) by triggering existing immunological response or leveraging them as a hook for other modes of attack can focus directly on specific cancer cells without damaging healthy cells. Sales of antibody-based drugs (monoclonal antibody [“mAb”] therapy) are growing rapidly, with global sales increasing from US\$2 billion in 2000 to US\$14 billion in 2005 and US\$78 billion in 2012. Among the ten best-selling drugs in 2012, six were mAb drugs, each with annual sales exceeding US\$5 billion. Research In China projects the mAb market to expand to US\$141 billion in 2017, a CAGR of 12.6% during 2012-17.
- **Natural (human or IgM-based) antibodies have been attracting growing interest.** IgM-based antibodies are among the most commonly-found, naturally-occurring family of antibodies present in the human immune system. IgM-based therapies are promising for detection and management of cancers. There has been increased interest in these antibodies with R&D activities, as there is potential for developing blockbuster therapies from these agents for other diseases like rheumatoid arthritis and Alzheimer’s.
- **Investment opportunities are readily available to investors.** There are many avenues for investors to capitalize on the potentially superb prospects of antibody-based therapies, including direct investment in large pharma as well as smaller companies developing specific therapies, partnerships, and M&A targets coupled with infrastructure-related companies. Investing in smaller companies in this space can be very risky, but the upside potential can be huge too if a drug is successfully introduced to the market.
- **Risk factors:** Key challenges and risks for investors involved in mAb-based cancer therapies include strong dependence on the outcomes of each stage of clinical trials and final agency approvals. Moreover, policy developments like increased scrutiny over pricing amid overall high cost of drug development, as well as the appearance of competing drugs from peers and competition from other therapies.