

Drug firms and cancer

# Lucrative lifesavers

NEW YORK

The hopes and perils of betting on cancer treatments

NEW weapons are emerging in the war on cancer. That is good news not just for patients but also for drug companies. The biggest ones, faced with falling sales as their existing medicines go off-patent, are investing in smaller firms with promising cancer treatments under development, hoping to secure the next blockbuster.

On August 25th Amgen, the world's biggest biotechnology company by sales, said it would pay \$10.4 billion for another American firm, Onyx. The target firm's crown jewel is Kyprolis, a treatment for multiple myeloma, a type of blood cancer. The next day AstraZeneca, a British drugs firm, said it would snap up Amplimmune, an American firm working on ways to trigger the immune system to fight cancer.

Oncology is attractive for several reasons. First, the understanding of cancer is evolving rapidly. In the 20th century treatment relied on surgery, radiation and chemotherapy. These now seem rudimentary. Immunotherapy—getting the immune system to attack cancer—has gone from theory into practice. Genomics has helped scientists target specific mutations that promote cancer. Another area of excitement for cancer researchers is epigenetics, which alters how a gene acts without meddling with the sequence of DNA.

Second, regulators have speeded up their approval of cancer drugs. Of the 39 medicines approved by America's Food and Drug Administration (FDA) in 2012, 11 were for cancer. These included Kyprolis, which was granted "accelerated approval", based on a smaller clinical trial than usual, for use as a last-ditch treatment for patients with multiple myeloma.

Third, and most controversial, cancer drugs can fetch exorbitant prices, particularly in America (see table). "The idea is that there's nothing else available, so you can ask for a high price," explains Howard Liang of Leerink Swann, an investment bank. A typical course of treatment with Kyprolis lasting, say, five months, can cost around \$50,000.

Little surprise, then, that big drugmakers are keen to develop their own cancer drugs, form partnerships with smaller firms that have promising treatments in the pipeline, and buy such companies outright. Kyprolis was first developed by a small firm called Proteolix, which was bought by Onyx, now acquired by Amgen. In 2009 Bristol-Myers Squibb, an American drug giant, paid \$2.4 billion for Meda-

rex, which had an experimental immunotherapy drug. That drug, for melanoma (a skin cancer), is now sold in America for \$120,000 for a full course of treatment.

There are risks, however. Even a drug seemingly destined for fame and fortune can fall flat. The FDA has approved Kyprolis only for patients who have already tried at least two other treatments. Its annual sales could reach \$3 billion, reckons Goldman Sachs. But that requires approval beyond America, and data showing that Kyprolis is worth giving to earlier-stage patients. AstraZeneca is buying Amplimmune largely for two cancer drugs still in early testing. "If you are not willing to take risks, you cannot be in this area," says Bahija Jallal, an executive at AstraZeneca.

The biggest question in the long term is whether health insurers and governments will keep paying up. Onyx and Bayer, a German firm, share the profits of Nexavar, a kidney-cancer drug. Last year Indian regulators granted a local firm a "compulsory licence" to sell Nexavar copies for a fraction of Bayer's price. The response elsewhere is less extreme. But companies face new scrutiny over their prices, particularly in Europe. In April more than 100 experts in chronic myeloid leukaemia (another blood cancer) signed a paper to protest against the high cost of drugs. For now, however, Amgen should be able to continue charging handsomely for Kyprolis. ■

### The cost of combating cancer

Price of a full course of treatment in the US\*

Drug	Company	Type of cancer treated	Cost, \$
Tykerb	GlaxoSmithKline	Breast	34,119
Pomalyst	Celgene	Myeloma	52,227
Zelboraf	Roche/Daiichi Sankyo	Melanoma	54,463
Tarceva	Roche/Astellas	Pancreatic and lung	55,218
Inlyta	Pfizer	Kidney	58,706
Xalkori	Pfizer	Lung	66,780
Bosulif	Pfizer	Leukaemia	81,813†
Revmid	Celgene	Myeloma	95,390

\*Selected cancer treatments approved since 2004  
 †Maximum: length of treatment varies by patient  
 Source: ISI Group

