

# Track & trace

**IT IS ESTIMATED THAT 10% OF ALL MEDICINES CIRCULATING GLOBALLY ARE COUNTERFEIT, WITH LEVELS PEAKING AT 25% IN DEVELOPING NATIONS. WITH COUNTERFEITING SO COMMONPLACE, WE WERE RECENTLY COMMISSIONED TO EVALUATE THE MARKET FOR THE TECHNOLOGIES CAPABLE OF PROTECTING THE PUBLIC.**

We found that the most important attributes for anti-counterfeiting technologies are ease of use, low cost and ease of application to a product. Being covert, exclusively linked to a detection system or holding large quantities of information, are considered less important attributes. This explains why overt measures such as barcodes and holograms are popular: they are relatively cheap, easy to implement and simple to detect. However, they are also easy to counterfeit.

While not as frequently used as barcodes or holograms, more novel measures such as radiofrequency identity (RFID) tags, colour shifting inks and molecular markers are more difficult to counterfeit and are becoming increasingly popular.

RFID is the FDA's technology of choice to combat counterfeiting. In early 2004, the FDA released a report on ways to reduce the counterfeiting of prescription drugs. The report called for the use of RFID technology to track the manufacturing and distribution of prescription drugs within three years. However, three years on from the report, RFID has still not been widely adopted as it is deemed relatively expensive (\$0.05/tag), there is a need for centralised standards and there are concerns over privacy.

Colour shifting inks are mostly used on bank notes but can also be found on packaging for some drugs. These inks contain thin metal flakes and, depending on the angle of the incoming light, the inks change colour. However, since they are overt and visible to the naked eye, they are still relatively easy to counterfeit when compared to covert measures, such as molecular markers.

Molecular markers score strongly on many of the features that are deemed less important, such as being exclusively linked to a detection system. They are also perceived as relatively expensive, difficult to implement and complicated to detect. In order to be successful, companies developing such technologies need to address these issues and position their solution to meet customer needs by marketing the benefits rather than focusing on subtle technical differences.

There are many high profile companies working together with their customers to implement covert, customised molecular marker solutions, which can only be read with proprietary readers. While this makes them extremely difficult to counterfeit, it also makes it more complicated in the field to authenticate them.

The market for molecular markers is currently perceived as highly fractionated by the pharmaceutical industry. As a result, consolidation is expected, enabling the suppliers to benefit from much greater economies of scale. This would bring down prices for molecular markers, solving one of the barriers and therefore making them more attractive. Until commonplace drug companies implement molecular markers on a regular basis, molecular markers will have to become a lot more mainstream and prove that their implementation not only saves a company's reputation, but also revenues currently lost to counterfeiters.

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