

months) for the treatment of solid tumours extended the patent protection of Taxotere to November 2010.<sup>70</sup>

#### 4. Conclusion

In its patent strategy Sanofi-Aventis focused mainly on three innovation tracks: formulations, combinations and process. Use of SPCs was also important to prolong in Europe and in the U.S. the life of the patent application that first disclosed docetaxel.

The patent filing trends for docetaxel (figure 2) show a first increment of filing activity in 1996 after launch followed by a second surge in 2002 and a third one in 2006. However, around 280 entities contributed actually to such filing whose distribution is shown in figure 3.<sup>71</sup> Of particular note is the large number of individual and academic inventors in the case of docetaxel, which is likely due to the particular interest cancer research attracts both in terms of public grants and in terms of public visibility. However, just contributing to total patent numbers, most of these patents appear to be neither a real challenge for the position of the originator, nor are they of particular commercial interest. There seem to be only a few cases, where, in the phase after marketing had started, Aventis secured patents through collaboration with university partners.<sup>72</sup>

As already mentioned, a substantial number of patents (75%) is directed towards the research fields of formulation, combination and process (figure 2). However, only a limited amount of these has been submitted by the originator company. In the formulation track for example, although the number of patent families is very high, only three patent families belong to the originator company after 1996 (launch year). Other two companies, Forest Laboratories (14 patents) and

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70 See Zhikong He *supra* note 40.

71 The data forming the basis for the graphic display of the patent filing trends has been kindly provided by the Patent Department of Boehringer Ingelheim GmbH.

72 For example WO 02/070498 has been obtained by collaboration with a group at the State University of New York.

Nitto Denko Corp. (7), were very active in this area. The same trend can be seen in the field of drug combinations, the number of active entities was quite high and in addition to Sanofi-Aventis other competitors companies showed great interest. For example, Pfizer filed eight patent families, Roche Holding AG five, while Sanofi-Aventis accounted for six families. Finally, as process research is concerned, the two top companies in terms of filing numbers in addition to Sanofi-Aventis are the two generic manufacturers Dr Reddy's Laboratories and Shanghai Parling Pharma-Techco.

Additionally, a number of patent applications (3%) have been directed both by the originator as well as by external research to alternative compounds, i.e. derivatives of the taxan core with great resemblance of the marketed drug.

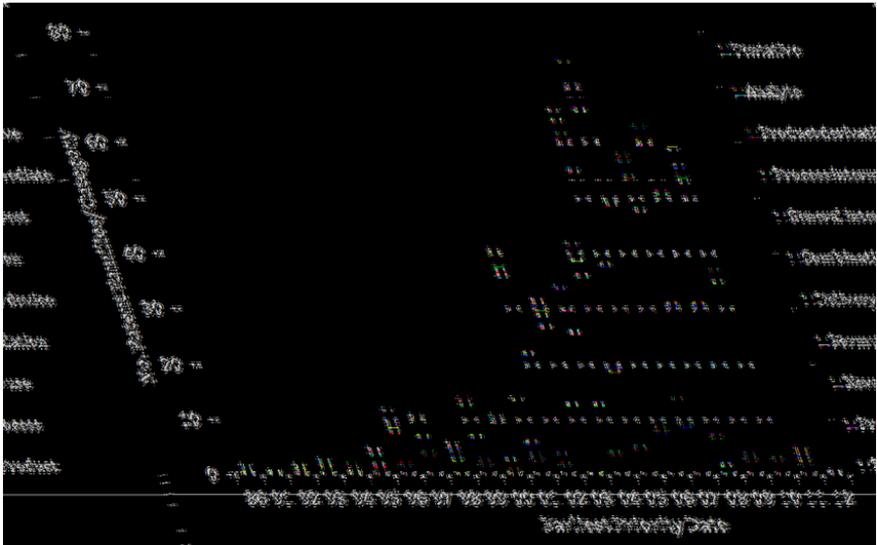


Figure 2: Patent filing trends: docetaxel<sup>73</sup>

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73 *Supra* note 71.

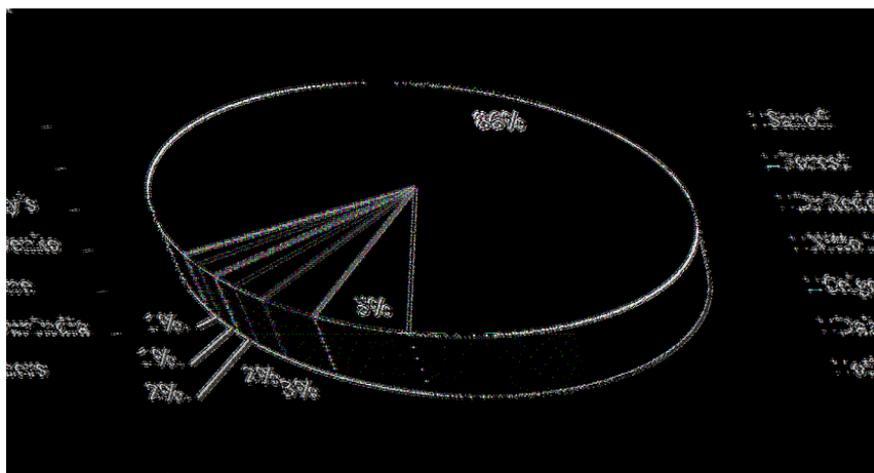
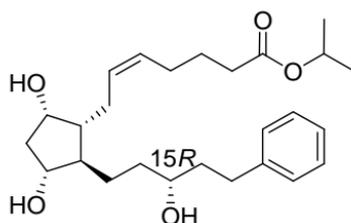


Figure 3: Top patent applicants for docetaxel (474 patents)<sup>74</sup>

## B. Xalatan

### 1. General

Latanoprost (trade name Xalatan: Formula 3) is an ophthalmic solution used to treat glaucoma and ocular hypertension by reducing elevated intraocular pressure.



### Formula 3

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<sup>74</sup> *Id.*