

## Supplementary Material 1: Approved personalized drugs

active ingredient	therapeutic area	testing of	test description	recommended or obligate test
Abacavir	HIV	Adverse effects	HLA-B*5701	Compulsory test since 02/2008
Afatinib	Lung cancer	Effectiveness	EGFR	Compulsory test since 09/2013
Anastrozole	Breast cancer	Effectiveness	Hormone receptor positive breast cancer cells	Compulsory test since 06/1996
Arsenic trioxide	Acute promyelocytic leukaemia	Effectiveness	Promyelocytic leukaemia-/Retinoic acid receptor alpha (PML/RAR-alpha) gene	Compulsory test since 03/2002
Ataluren	Duchenne muscular dystrophy	Effectiveness	Nonsense-Mutation of the dystrophy -gene	Compulsory test since 07/2014
Azathioprine	Immunosuppressant	Adverse effects	TMPT	Recommended
Blinatumomab	Acute lymphatic leukaemia	Effectiveness	Philadelphia-Chromosome	Compulsory test since 11/2015
Bosutinib	Chronic myelogenous leukaemia	Effectiveness	Philadelphia-Chromosome	Compulsory test since 03/2013
Brentuximab vedotin	Hodgkin Lymphomas and anaplastic large cell lymphoma	Effectiveness	Test of CD30 overexpression	Compulsory test since 10/2012
Carbamazepine	Epilepsy	Adverse effects	HLA-B*1502-allele	Recommended
Ceritinib	Lung cancer	Effectiveness	Anaplastic lymphoma kinase (ALK)	Compulsory test since 05/2015
Cetuximab	Colorectal cancer	Effectiveness	Non-mutated (wild-type) RAS-gene	Compulsory test since 07/2008
Cobimetinib	Melanoma	Effectiveness	BRAF V600 mutation	Compulsory test since 11/2015
Crizotinib	Lung cancer	Effectiveness	EML4-ALK	Compulsory test since 10/2012
Dabrafenib	Melanoma	Effectiveness	BRAF V600 mutation	Compulsory test since 08/2013
Dasatinib	Acute lymphatic leukaemia	Effectiveness	Philadelphia-Chromosome	Compulsory test since 11/2006
Eliglustat	Gaucher Disease	Effectiveness	Cytochrome-P450 Type 2D6 (CYP2D6)	Compulsory test since 01/2015
Erlotinib	Lung cancer	Effectiveness	EGFR	Compulsory test since 08/2011
Everolimus	Breast cancer	Effectiveness	HER2/neu-expression	Compulsory test since 07/2012
Exemestane	Breast cancer	Effectiveness	Estrogen receptor positive breast cancer cells	Compulsory test since 12/1999
Fulvestrant	Breast cancer	Effectiveness	Hormone receptor positive breast cancer cells	Compulsory test since 03/2004
Gefitinib	Lung cancer	Effectiveness	EGFR	Compulsory test since 07/2009
Ibrutinib	Chronic lymphatic leukaemia	Effectiveness	Deletion or TP53-mutation	Compulsory test since 10/2014
Imatinib	Acute lymphatic and chronic myelogenous leukaemia	Effectiveness	Philadelphia-Chromosome	Compulsory test since 11/2001
Ivacaftor	Mucoviscidosis with specific mutations	Effectiveness	Specific mutation of the CFTR-gene	Compulsory test since 07/2012
Lapatinib	Breast cancer	Effectiveness	HER2-overexpression	Compulsory test since 06/2008
Letrozol	Breast cancer	Effectiveness	Hormone receptor positive breast cancer cells	Compulsory test since 01/1997
Lomitapide	Increased cholesterol- or blood lipid level	Effectiveness	Genetic evidence of homozygous familial hypercholesterolemia	Recommended test since 07/2013
Lumacaftor/Ivacaftor	Mucoviscidosis	Effectiveness	Homozygous F508del-mutation in the CFTR-gene	Compulsory test since 11/2015
Maraviroc	HIV	Effectiveness	CCR5-tropic HI-viruses	Compulsory test since 09/2007
Mercaptopurine	Acute lymphatic leukaemia	Adverse effects	TMPT	Recommended
Natalizumab	Multiple sclerosis	Adverse effects	Anti-JCV-antibody	Recommended test since 06/2011
Necitumumab	Non-small cell lung cancer	Effectiveness	EGFR	Compulsory test since 02/2016
Nilotinib	Chronic myelogenous leukaemia	Effectiveness	Philadelphia-Chromosome	Compulsory test since 11/2007
Olaparib	Ovarian cancer	Effectiveness	BRCA	Compulsory test since 12/2014
Osimertinib	Non-small cell lung cancer	Effectiveness	EGFR	Compulsory test since 02/2016
Oxcarbazepine	Epilepsy	Adverse effects	HLA-B*1502-Allele	Recommended test since 07/2012
Panitumumab	Colorectal cancer	Effectiveness	Non-mutated (wild-type) RAS-gene	Compulsory test since 12/2007
Pertuzumab	Breast cancer	Effectiveness	HER2-overexpression	Compulsory test since 03/2013
Ponatinib	Acute lymphatic leukaemia	Effectiveness	Philadelphia-Chromosome	Compulsory test since 07/2013
Tamoxifen	Breast cancer	Effectiveness	Hormone receptor positive breast cancer cells	Recommended
Toremifen	Breast cancer	Effectiveness	Hormone receptor positive breast cancer cells	Compulsory test since 02/1996
Trametinib	Melanoma	Effectiveness	BRAF V600-mutation	Compulsory test since 06/2014
Trastuzumab	Breast cancer und gastric cancer	Effectiveness	HER2-overexpression, HER2, gene copy number	Compulsory test since 08/2000
Trastuzumab emtansin	Breast cancer	Effectiveness	HER2-overexpression	Compulsory test since 11/2013
Vandetanib	Medullary carcinoma of the thyroid	Effectiveness	RET-mutation	Recommended test since 02/2012
Vemurafenib	Melanoma	Effectiveness	BRAF-V600 mutation	Compulsory test since 02/2012