

Table 20.1 Drugs Derived from Natural Products (1990–2000)

Name	Originator	Indication/Use
Acarbose	Bayer	Diabetes
Artemisinin	Kunming & Guilin	Malaria
Azithromycin	Pliva	Antibiotic
Carbenin	Sankyo	Antibiotic
Cefetamet pivoxil	Takeda	Antibiotic
Cefozopran	Takeda	Antibiotic
Cefpimizole	Ajinomoto	Antibiotic
Cefsulodin	Takeda	Antibiotic
Clarithromycin	Taisho	Antibiotic
Colforsin daropate	Nippon Kayaku	Asthma
Docetaxel	Aventis	Cancer
Dronabinol	Solvay	Alzheimer's disease
Galantamine	Intelligen	Alzheimer's disease, arthritis
Gusperimus	Nippon Kayaku	Arthritis
Irinotecan	Yakult Honsha	Cancer
Ivermectin	Merck & Co	Parasiticide
Lentinan	Ajinomoto	Cancer
LW-50020	Sankyo	Immunomodulation
Masoprocol	Access	Cancer
Mepartricin	SPA	Benign prostatic hyperplasia
Miglitol	Bayer	Diabetes
Mizoribine	Asahi Chemical	Arthritis
Mycophenolate mofetil	Hoffman-LaRoche	Arthritis
Orlistat	Hoffman-LaRoche	Obesity
Paclitaxel	Bristol-Myers Squibb	Cancer
Pentostatin	Warner-Lambert	Leukemia
Podophyllotoxin	Nycomed Pharma	Human papillomavirus
Policosanol	Dalmer	Hyperlipidaemia
Everolimus	Novartis	Immunomodulation
Sirolimus	American Home Products	Immunomodulation
Sizofilan	Taito	Cancer, hepatitis-B virus
Subreum	OM Pharma	Arthritis
Synercid	Novartis	Antibiotic
Tacrolimus	Fujisawa	Immunomodulation
Teicoplanin	Aventis	Antibiotic
Tirilazad mesylate	Pharmacia & Upjohn	Subarachnoid haemorrhage
Topotecan	GlaxoSmithKline	Diabetes
Ukrain	Nowicky Pharma	Cancer, HIV/AIDS
Vinorelbine	Pierre Fabre	Cancer
Voglibose	Takeda	Diabetes, obesity
Z-100	Zeria	Immunomodulation

2 DRUGS AFFECTING THE CENTRAL NERVOUS SYSTEM

2.1 Morphine Alkaloids

The history of the opium alkaloids is too well known to warrant repetition here, but the analgesics based on morphine (**1**) are too important to be left out of an account of natural products as leads. Thus we shall summarize the clinically more important developments

that have occurred since the isolation of morphine in **1803**. Codeine (**2**) continues to be used widely for the treatment of moderate pain and, although present in the opium poppy (*Papaver somniferum*), it is normally synthesized in higher yield from morphine (**4**).

Other than codeine, the earliest significant semisynthetic derivative of morphine is the diacetate heroin (**3**), which is still widely used in terminal cancer where its addictiveness is ir-