

# Appendix

## Some important pharmacological agents

Students may feel overwhelmed by the number of drugs described in pharmacology textbooks. We would emphasise that it is more important to understand general pharmacological principles, and to appreciate the pharmacology of the main classes of drug, than to attempt to memorise details of individual agents. Specific drugs are best learned about when they are encountered in the setting of particular topics (e.g. noradrenergic transmission), during practical classes or (for therapeutic drugs) near a patient's bedside. We provide a list ([www.studentconsult.com](http://www.studentconsult.com)) of examples of some of the most important pharmacological agents. It is not intended as a starting point to learning pharmacology, and we would caution against attempting to memorise lists of names and properties. The important agents we list here were selected subjectively; they include (but are not limited to) the 100 drugs most likely to be prescribed by newly qualified doctors in the UK (Baker et al., 2011) and are divided into agents of primary and secondary importance. For students of some subjects, and in different geographical areas, one or another class of drug will have more or less importance (e.g. anthelmintics are very important for veterinarians and for all clinicians in regions where helminthiasis is common), so these categories are meant only as a broad guide. The list includes not only drugs used therapeutically, but also endogenous mediators/transmitters (med/trnsm) and certain important drugs used mainly as experimental tools (exp.tool) – especially important for students studying basic or applied pharmacology as a science subject – and drugs used for recreational (recreat) rather than therapeutic purposes. Some endogenous mediators (e.g. adrenaline [epinephrine]) are also important therapeutic drugs.

The General Medical Council's 'Tomorrow's Doctors' (2009) specifies that students should be able to demonstrate knowledge of drug actions; therapeutics and pharmacokinetics; drug side effects and interactions, including for multiple treatments, long-term conditions and non-prescribed medication; and also including effects of drugs on the population, such as the spread of antibiotic resistance. A working knowledge of drugs in the 'primary importance' category should be built up gradually as they are encountered during training. For drugs in the second category, it is usually sufficient to be aware of the mechanism of action, supplemented by understanding how they differ from those in the primary category when relevant.

The choice of drugs in clinical use is somewhat arbitrary. Hospital formulary committees (on which

pharmacists play a crucial role) grapple with choosing which individual drugs to stock in the pharmacy. There is a play-off between stocking several individual drugs of one category, for each of which there is good evidence of efficacy for distinct indications, and stocking a more restricted choice based on indirect evidence that efficacy is likely to be a common feature of different members of a class of drugs. Local variations will be encountered (e.g. as to which angiotensin-converting enzyme inhibitor or non-steroidal anti-inflammatory drugs are stocked in the hospital pharmacy). If the student or clinician (e.g. doctor, dentist, veterinarian or nurse) comes to these (e.g. when changing to a job in a new hospital) with a sound appreciation of the general principles of pharmacology and of the specifics of the various classes of agent involved, he or she will be able to look up and understand the details of agents favoured locally and use them sensibly. Drugs are grouped broadly as in the chapters of the text, and some appear more than once in the lists.

### REFERENCES

- Baker, E.H., Pryce Roberts, A., Wilde, K., et al., 2011. Development of a core drug list towards improving prescribing education and reducing errors in the UK. *Br. J. Clin. Pharmacol.* 71, 190–198.
- GMC (General Medical Council), 2009. Tomorrow's Doctors: Outcomes and standards for undergraduate medical education. Online: [www.gmc-uk.org/education/undergraduate/tomorrows\\_doctors\\_2009.asp](http://www.gmc-uk.org/education/undergraduate/tomorrows_doctors_2009.asp) (accessed July 2014).

### KEY

(Note: designation does not exclude a separate therapeutic role – for example, nicotine and cocaine are used therapeutically as well as recreationally, adrenaline is used therapeutically as well as being a mediator; conversely, some primarily therapeutic drugs such as morphine or other opioid analgesics are used recreationally by some individuals.)

med/trnsm = mediator/transmitter

exp.tool = experimental tool

recreat = drug used especially for recreational purposes

antag = antagonist

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## Primary

## Secondary

**Cholinergic transmission (see Ch. 13)****Agonists**

acetylcholine (med/trnsm)  
suxamethonium  
nicotine (recreat)

carbachol  
pilocarpine

**Antagonists**

atropine  
tubocurarine (exp.tool)  
hexamethonium (exp.tool)  
vecuronium  
oxybutinin  
botulinum toxin  
(presynaptic action)

tropicamide  
pancuronium  
atracurium  
 $\alpha$ -bungarotoxin (exp.tool)  
tolterodine

**Anticholinesterases and related drugs**

neostigmine  
edrophonium  
donepezil

pyridostigmine  
pralidoxime (cholinesterase  
reactivator)

**Noradrenergic transmission (Ch. 14)****Agonists**

adrenaline (epinephrine)  
(med/trnsm)  
noradrenaline (norepinephrine)  
(med/trnsm)  
isoprenaline (isoproterenol)  
(exp.tool)  
salbutamol

clonidine  
phenylephrine  
dopamine (med/trnsm)  
dobutamine

**Antagonists**

propranolol  
atenolol  
metoprolol  
bisoprolol

prazosin  
doxazosin  
tamsulosin

**Drugs affecting noradrenergic neurons**

cocaine (recreat) (Ch. 48)  
tyramine (exp.tool)  
methyl dopa (Ch. 22)  
amphetamine (recreat) (Ch. 48)

guanethidine (exp.tool)  
reserpine (exp.tool)  
amitriptyline (Ch. 46)  
 $\alpha$ -methyltyrosine (exp.tool)  
phenelzine (Ch. 46)

**5-Hydroxytryptamine (serotonin) (Ch. 15)****Drugs acting on 5-HT receptors (see Ch. 46 for 5-HT reuptake inhibitors)**

5-HT (serotonin) (med/trnsm)	ergotamine/ dihydroergotamine
LSD (recreat)	metoclopramide
ondansetron	granisetron
methysergide	pizotifen
triptans (e.g. sumatriptan)	ketotifen

5-HT, 5-hydroxytryptamine; LSD, lysergic acid diethylamide.

## Primary

## Secondary

**Purines (Ch. 16)****Drugs/mediators acting on purinoceptors or purine uptake**

adenosine (med/trnsm)  
(+ therapeutic: Ch. 21)

dipyridamole

theophylline, aminophylline

prasugrel (Chs 24 and 28)

caffeine (recreat)

ATP (med/trnsm)

ADP (med/trnsm)

clopidogrel

**Local hormones (Chs 17 and 18)****Cytokines (all: med/trnsm) (Ch. 18)**

interleukins  
chemokines  
tumour necrosis factor

**Tumour necrosis factor antagonists:**

etanercept, infliximab  
interferons (med/trnsm)  
colony-stimulating factors  
(Ch. 26) (med/trnsm)

**Histamine and H<sub>1</sub> and H<sub>2</sub> antagonists (Ch. 17)**

histamine (med/trnsm)	fexofenadine
cetirizine	cyclizine
promethazine	
ranitidine	
cimetidine	

**Lipid-derived mediators (Ch. 18)**

prostaglandins E and F (med/trnsm)	Platelet-activating factor (med/trnsm)
prostaglandin I <sub>2</sub> (med/trnsm)	latanoprost
thromboxane A <sub>2</sub> (med/trnsm)	lipoxins (med/trnsm)
leukotrienes (med/trnsm)	

**Inflammatory peptides (Ch. 18)**

bradykinin	icatibant (bradykinin antagonist)
	substance P
	calcitonin-gene-related peptide (CGRP)
	neurokinin A

## Primary

## Secondary

**Cannabinoids and related drugs (Ch. 19)**

$\Delta^9$ -tetrahydrocannabinol (recreat)	nabilone
anandamide (med/trnsm)	

**Nitric oxide (Ch. 20)**

nitric oxide (med/trnsm)
L-N <sup>G</sup> -monomethyl arginine (L-NMMA) (exp.tool)

**Heart (Ch. 21)****Antidysrhythmic drugs (Vaughan Williams classification)**

Class I	lidocaine	flecainide
Class II	metoprolol	sotalol
Class III	amiodarone	
Class IV	verapamil	
Unclassified	adenosine	digoxin

**Antianginal drugs****Nitrates**

glyceryl trinitrate  
 isosorbide mononitrate  
 nicorandil (combined with K<sup>+</sup>-channel activation)

 **$\beta$  Blockers**

metoprolol

**Calcium antagonists**

diltiazem

## Primary

## Secondary

**Vascular system (Ch. 22)****Antihypertensive drugs (A, B, C and D)****A: ANGIOTENSIN-CONVERTING ENZYME INHIBITORS AND ANGIOTENSIN II (AT<sub>1</sub> RECEPTOR) ANTAGONISTS**

captopril	lisinopril
ramipril	trandolapril
losartan	irbesartan
candesartan	

**B:  $\beta$ -ADRENOCEPTOR ANTAGONISTS**

metoprolol

**C: CALCIUM ANTAGONISTS**

amlodipine  
 nifedipine

**D: THIAZIDES AND RELATED DIURETICS**

bendroflumethiazide  
 hydrochlorothiazide  
 indapamide  
 chlortalidone

 **$\alpha_1$ -adrenoceptor antagonists**

doxazosin

**Other vasodilators**

hydralazine	minoxidil
	nitroprusside
	aliskiren (renin inhibitor)

**Centrally acting drugs**

methyl dopa  
 moxonidine

**Drugs used in heart failure and shock****DIURETICS (SEE ALSO Ch. 29)**

furosemide  
 amiloride  
 spironolactone  
 eplerenone

**ANGIOTENSIN-CONVERTING ENZYME INHIBITORS AND AT<sub>1</sub> ANTAGONISTS****Cardiac glycoside**

digoxin

**Drugs acting on adrenoceptors**

carvedilol  
 dobutamine  
 bisoprolol  
 dopamine  
 metoprolol

**Vasodilators**

hydralazine  
 K<sup>+</sup>-channel activators  
 isosorbide mononitrate

**Pulmonary hypertension**

epoprostenol  
 iloprost  
 sildenafil  
 bosentan

**Atherosclerosis and dyslipidaemia (Ch. 23)**

simvastatin	ezetimibe
atorvastatin	pravastatin
	fibrates (gemfibrozil, fenofibrate)
	nicotinic acid derivatives
	resins (colestyramine, colesevelam)
	fish oil

## Primary

## Secondary

**Haemostasis and thrombosis (Ch. 24)****Oral anticoagulants and related drugs**

warfarin	rivaroxiban
vitamin K (antag)	
dabigatran etexilate	

**Heparin-related drugs and related drugs**

heparin	protamine (antag)
enoxaparin	fondaparinux

**Antiplatelet drugs**

aspirin	dipyridamole
clopidogrel	epoprostenol
abciximab	prasugrel

**Fibrinolytic drugs and inhibitors of fibrinolysis**

streptokinase	
tissue plasminogen activator	
tranexamic acid (inhibitor)	

**Haematinics and related drugs (Ch. 25)**

ferrous sulfate	filgrastim
desferrioxamine (iron chelator)	hydroxycarbamide (hydroxyurea)
folic acid	eculizumab
hydroxocobalamin	
epoietin	

**Anti-inflammatory and immunosuppressant drugs (Ch. 26)****Cyclo-oxygenase inhibitors (NSAIDs)**

aspirin (see also Ch. 24)	indometacin
paracetamol (acetaminophen)	diclofenac
ibuprofen	coxibs (e.g. celecoxib)
naproxen	

**Disease-modifying anti-rheumatic drugs (DMARDs)**

methotrexate	gold complexes (e.g. auranofin)
tumour necrosis factor antagonists: etanercept, infliximab	hydroxychloroquine
glucocorticoids (e.g. prednisolone)	penicillamine
	sulfasalazine

**Immunosuppressant drugs**

azathioprine	anakinra (interleukin-1 antagonist)
ciclosporin	
tacrolimus	
methotrexate	
prednisolone	

**Drugs used in gout**

NSAIDs (see above)	colchicine
allopurinol (prophylaxis)	probenecid (prophylaxis)
	sulfapyrazone

NSAID, non-steroidal anti-inflammatory drug.

## Primary

## Secondary

**Skin (Ch. 27)****Topical glucocorticoids**

hydrocortisone	
clobetasone butyrate	
beclomethasone dipropionate	
clobetasol propionate	

**Biologicals (specialist use)**

adalimumab
infliximab

**Topical calcineurin inhibitors**

ciclosporin
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**Topical vitamin D derivatives**

calcitriol
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**Topical retinoids**

tretinoin
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**Respiratory system (Ch. 28)** **$\beta_2$ -adrenoceptor agonists**

salbuterol	terbutaline
salmeterol	formoterol

**Inhaled glucocorticoids**

beclometasone
mometasone

**Inhaled muscarinic antagonists**

ipratropium	tiotropium
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**Xanthine alkaloids**

theophylline
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**Leukotriene antagonists and 5-lipoxygenase inhibitors**

montelukast
zileutin

**Anti-immunoglobulin E**

omalizumab
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**Antitussive drug**

codeine
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## Primary

## Secondary

**Analgesics and related substances (Ch. 42)****Opioids and related drugs**

morphine	oxycodone
codeine	buprenorphine
fentanyl	remifentanyl (anaesthesia)
pethidine	methadone
naloxone (antag)	diamorphine (heroin) (recreat)
	naltrexone (antag)

**Mild analgesics**

aspirin and other NSAIDs  
paracetamol

**Other analgesic drugs**

tramadol (and tapentadol)	ketamine
carbamazepine	
gabapentin (and pregabalin)	
amitriptyline	
duloxetine	

**Others related to nociception**

enkephalins and endorphins  
(med/trnsm)  
dynorphin (med/trnsm)  
capsaicin (exp.tool)

**Local anaesthetics and other drugs that affect sodium channels (Ch. 43)****Local anaesthetics (Ch. 43)**

lidocaine	tetracaine (amethocaine)
bupivacaine (and levobupivacaine)	ropivacaine
	mepivacaine
	articaine (dentistry)

**Selective sodium channel blocker (Ch. 43)**

tetrodotoxin (exp.tool)

**Anxiolytic and hypnotic drugs (Ch. 44)****Antidepressants used as anxiolytic drugs (see also Ch. 47)**

fluoxetine  
paroxetine  
sertraline

**Benzodiazepines and related drugs**

temazepam	nitrazepam
diazepam	lorazepam
midazolam	flumazenil (antag)
	zopiclone

**Other**

bupirone (5-HT<sub>1A</sub> receptor  
agonist)

propranolol  
antiepileptic drugs, e.g.  
gabapentin, valproate

## Primary

## Secondary

**Antiepileptic drugs and centrally acting muscle relaxants (Ch. 45)**

carbamazepine	phenobarbital
valproate	diazepam
vigabatrin	clonazepam
gabapentin (and pregabalin)	ethosuximide
lamotrigine	levetiracetam
baclofen	
phenytoin	

**Antipsychotic drugs (Ch. 46)****Classic**

chlorpromazine	fluphenazine
haloperidol	flupentixol
	thioridazine

**Atypical**

clozapine	risperidone
olanzapine	sulpiride
	aripiprazole
	quetiapine

**Drugs used in affective disorders (Ch. 47)****Tricyclic antidepressants**

amitriptyline	imipramine
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**Selective serotonin (5-HT) reuptake inhibitors**

fluoxetine	fluvoxamine
sertraline	escitalopram

**Monoamine oxidase inhibitors**

moclobemide ('RIMA')	phenelzine
	tranylcypromine

**Miscellaneous antidepressants**

venlafaxine	trazodone
duloxetine	bupropion
atomoxetine	

**Mood stabilisers**

lithium	atypical antipsychotic drugs (e.g. olanzapine)
carbamazepine	

## Primary

## Secondary

**Central nervous system stimulants and psychotomimetics (Ch. 48)**

amphetamine (recreat)	LSD (recreat)
cocaine (recreat)	ketamine (recreat)
caffeine (recreat)	mephedrone (recreat)
methylphenidate	
MDMA ('ecstasy')	
modafinil	

**Drug dependence and drug abuse (Chs 49 and 19)**

opiates (morphine, diamorphine [heroin]) (recreat)	$\Delta^9$ -tetrahydrocannabinol (recreat)
nicotine (recreat)	amphetamine (recreat)
ethanol (recreat)	solvents (recreat)
cocaine (recreat)	benzodiazepines (recreat)
methadone	
buprenorphine	
naltrexone	
acamprosate	
bupropion	

**Antibacterial agents (Ch. 51)**

<b>Bacterial cell wall inhibitor</b>	
benzylpenicillin	piperacillin
amoxicillin	
flucloxacillin	
cephalosporins (cefadroxil, cefotaxime, ceftriaxone)	
vancomycin	
<b>Topoisomerase inhibitor</b>	
ciprofloxacin	
<b>Folate inhibitors</b>	
trimethoprim	sulfonamides
<b>Bacterial protein synthesis inhibitors</b>	
gentamicin	
amikacin	
tetracycline	
chloramphenicol	
erythromycin	
clarithromycin	
<b>Antianaerobe drug</b>	
metronidazole	benzyl penicillin
<b>Antimycobacterial agents</b>	
isoniazid	ethambutol
rifampicin	streptomycin
pyrazinamide	
dapsone	
clofazimine	

## Primary

## Secondary

**Antiviral agents (Ch. 52)**

<b>DNA polymerase inhibitors</b>	
aciclovir	foscarnet ganciclovir tribavirin (ribavirin)
<b>Reverse transcriptase inhibitors</b>	
zidovudine (AZT)	didanosine
lamivudine	
efavirenz (non-nucleoside inhibitor)	
<b>Protease inhibitor</b>	
saquinavir	indinavir
<b>Immunomodulators</b>	
interferons (med/trnsm)	
<b>Neuraminidase inhibitor</b>	
zanamivir	
<b>Inhibitor of HIV fusion with host cells</b>	
enfurvitide	
<b>Inhibitor of viral entry</b>	
maraviroc	

**Antifungal drugs (Ch. 53)**

<b>Polyene antibiotics</b>	
amphotericin B	nystatin
<b>Azoles</b>	
fluconazole	miconazole
<b>Antimetabolite</b>	
	flucytosine
<b>Others</b>	
	terbinafine echinocandin B

**Antiprotozoal drugs (Ch. 54)**

<b>Antimalarials</b>	
chloroquine	pyrimethamine plus sulfadoxine
quinine	
artemisinin	
primaquine	
<b>For <i>Pneumocystis pneumoniae</i></b>	
co-trimoxazole (high dose)	pentamidine
<b>Amoebicidal drug</b>	
metronidazole	
<b>Leishmanicidal drugs</b>	
antimonials (e.g. stibogluconate)	
pentamidine	
<b>Trypanosomicidal drugs</b>	
suramin	pentamidine
<b>Toxoplasmodicidal drug</b>	
pyrimethamine-sulfadiazine	



## Primary

## Secondary

**Anthelmintic drugs (Ch. 55)**

Broad spectrum  
mebendazole

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Roundworm, threadworm  
piperazine  
levamisole (roundworm)

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Schistosomes  
praziquantel

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River blindness  
ivermectin

## Primary

## Secondary

**Treatment of poisoning (Ch. 57)**

acetylcysteine

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naloxone (Ch. 42)

**Anticancer drugs (Ch. 56)****Alkylating agents and related compounds**

cyclophosphamide	lomustine
melfhalan	busulfan
cisplatin	chlorambucil

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**Antimetabolites**

cytarabine	fluorouracil
methotrexate	mercaptopurine
thioguanine	
pentostatin	gemcitabine

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**Cytotoxic antibiotics**

doxorubicin	
bleomycin	dactinomycin

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**Plant derivatives**

vinca alkaloids (vincristine, vinblastine)	etoposide
taxanes (paclitaxel, docetaxel)	
irinotecan	

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**Hormones and related drugs**

prednisolone	
dexamethasone	
flutamide	
buserelin	anastrozole
tamoxifen	

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**Monoclonal antibodies**

rituximab	erlotinib
trastuzumab	serafinib
panitumumab	
bevacizumab	