nous injection. Serum-gastrin concentrations are measured for up to 30 minutes following the diagnostic dose.

Secretin is also used in a dose of 1 clinical unit/kg (200 nanograms/kg) by slow intravenous injection as an aid in the identification of the pancreatic ducts in patients undergoing endoscopic retrograde cholangiopancreatography.

Autism. There have been anecdotal reports of improvement in behaviour in autistic children given porcine secretin. However, a double-blind placebo-controlled study[1] involving 60 children with autism or pervasive developmental disorder noted no benefit over 4 weeks after a single infusion of 400 nanograms/kg of synthetic human secretin. A randomised, placebo-controlled study[2] in 64 children with autism has similarly found no evidence of efficacy from 2 repeated doses of porcine secretin. Further controlled studies have likewise failed to demonstrate efficacy.[3,4]

1. Sandler AD, *et al.* Lack of benefit of a single dose of synthetic human secretin in the treatment of autism and pervasive developmental disorder. *N Engl J Med* 1999; **341:** 1801–6.
2. Roberts W, *et al.* Repeated doses of porcine secretin in the treatment of autism: a randomized, placebo-controlled trial. Abstract: *Pediatrics* 2001; **107:** e71. Full version: http://pediatrics.aappublications.org/cgi/content/full/107/5/e71 (accessed 08/07/04)
3. Levy SE, *et al.* Children with autistic spectrum disorders. I: comparison of placebo and single dose of human synthetic secretin. *Arch Dis Child* 2003; **88:** 731–6.
4. Coplan J, *et al.* Children with autistic spectrum disorders. II: parents are unable to distinguish secretin from placebo under double-blind conditions. *Arch Dis Child* 2003; **88:** 737–9.

Preparations

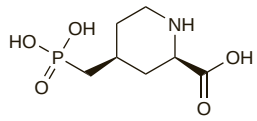
Proprietary Preparations (details are given in Part 3)
Ger.: Secrelux; ***USA:*** ChiRhoStim; SecreFlo.

Selfotel *(USAN, rINN)*

CGS-19755; Selfotelum. *cis*-4-(Phosphonomethyl)pipecolic acid.

Сельфотел

$C_7H_{14}NO_5P$ = 223.2.
CAS — 110347-85-8.



Profile

Selfotel is an *N*-methyl-D-aspartate (NMDA) antagonist that has been investigated for use in ischaemic stroke and head trauma.

◊ References.

1. Davis SM, *et al.* Termation of acute stroke studies involving selfotel treatment. *Lancet* 1997; **349:** 32.
2. Yenari MA, *et al.* Dose escalation safety and tolerance study of the competitive NMDA antagonist selfotel (CGS 19755) in neurosurgery patients. *Clin Neuropharmacol* 1998; **21:** 28–34.
3. Stewart L, *et al.* First observations of the safety and tolerability of a competitive antagonist to the glutamate NMDA receptor (CGS 19755) in patients with severe head injury. *J Neurotrauma* 1999; **16:** 843–50.
4. Morris GF, *et al.* The Selfotel Investigators. Failure of the competitive N-methyl-D-aspartate antagonist selfotel (CGS 19755) in the treatment of severe head injury: results of two phase III clinical trials. *J Neurosurg* 1999; **91:** 737–43.
5. Davis SM, *et al.* Selfotel in acute ischemic stroke: possible neurotoxic effects of an NMDA antagonist. *Stroke* 2000; **31:** 347–54.

Senecio

Крестовник Золотистый (*Senecio aureus*); Крестовник Якова (*Senecio jacobaea*)

Profile

The ragwort, *Senecio jacobaea*, and, in the USA, the golden ragwort (golden senecio; liferoot; squaw weed), *S. aureus* (Compositae), have been used in the form of extracts as emmenagogues but are of doubtful value. Ragwort, in the form of a decoction or ointment, has also been applied externally to aid wound healing and in the treatment of peripheral vascular disorders.

Many species of the genus *Senecio*, which includes the ragworts and groundsels, are poisonous. They have been found to contain pyrrolizidine alkaloids, which produce hepatic necrosis. The ragwort, *S. jacobaea*, which is abundant throughout the British Isles, is poisonous to livestock when eaten in quantity. Poisoning has also been reported in humans after ingestion of herbal teas containing pyrrolizidine alkaloids. In the UK, the sale, supply, or importation of unlicensed medicinal products containing *Senecio* spp. for internal use is prohibited.

Homoeopathy. Golden ragwort has been used in homoeopathic medicines under the following names: Senecio aur.; Senecio aureus; Sen. aur..

Preparations

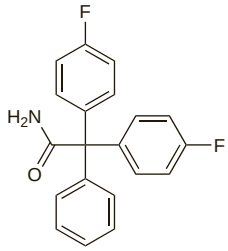
Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***Canad.:*** Thunas Tab for Menstrual Pain†.

Senicapoc *(USAN, rINN)*

17043; ICA-17043; Sénicapoc; Senicapocum. 2,2-bis (4-Fluorophenyl)-2-phenylacetamide.

Сеникапок

$C_{20}H_{15}F_2NO$ = 323.3.
CAS — 289656-45-7.



Profile

Senicapoc is an inhibitor of the Gardos calcium-activated potassium channel. It has been investigated to prevent the dehydration of red cells in sickle-cell anaemia.

Senlizumab *(BAN)*

Bay-10-3356; Bay-w-3356; CDP-571.

Сенлизумаб

CAS — 336128-48-4.

Profile

Senlizumab is a humanised monoclonal antibody to tumour necrosis factor. It has been investigated in the treatment of Crohn's disease, ulcerative colitis, and rheumatoid arthritis.

◊ References.

1. Rankin EC, *et al.* The therapeutic effects of an engineered human anti-tumour necrosis factor alpha antibody (CDP571) in rheumatoid arthritis. *Br J Rheumatol* 1995; **34:** 334–42.
2. Evans RC, *et al.* Treatment of ulcerative colitis with an engineered human anti-TNF alpha antibody CDP571. *Aliment Pharmacol Ther* 1997; **11:** 1031–5.
3. Stack WA, *et al.* Randomised controlled trial of CDP571 antibody to tumour necrosis factor-α in Crohn's disease. *Lancet* 1997; **349:** 521–4.
4. Anonymous. CDP 571: anti-TNF monoclonal antibody, BAY 103356, BAY W 3356, Humicade. *Drugs R D* 2003; **4:** 174–8.
5. Sandborn WJ, *et al.* CDP571, a humanised monoclonal antibody to tumour necrosis factor α, for moderate to severe Crohn's disease: a randomised, double blind, placebo controlled trial. *Gut* 2004; **53:** 1485–93.
6. Mamula P, *et al.* CDP571, a humanized anti-tumor necrosis factor-alpha monoclonal antibody in pediatric Crohn's disease. *Inflamm Bowel Dis* 2004; **10:** 723–30.
7. Feagan BG, *et al.* A randomized, double-blind, placebo-controlled trial of CDP571, a humanized monoclonal antibody to tumour necrosis factor-alpha, in patients with corticosteroid-dependent Crohn's disease. *Aliment Pharmacol Ther* 2005; **21:** 373–84.
8. Feagan BG, *et al.* CDP571, a humanized monoclonal antibody to tumour necrosis factor-alpha, for steroid-dependent Crohn's disease: a randomized, double-blind, placebo-controlled trial. *Aliment Pharmacol Ther* 2006; **23:** 617–28.

Sepia

Profile

Sepia is the dried inky secretion of the cuttle fish.

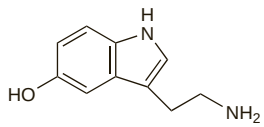
Homoeopathy. Sepia has been used in homoeopathic medicines under the following names: Sepia officinalis.

Serotonin

Enteramina; Enteramine; 5-Hidroxitriptamina; 5-HT; 5-Hydroxytryptamine; Serotonina. 3-(2-Aminoethyl)-1*H*-indol-5-ol.

Серотонин

$C_{10}H_{12}N_2O$ = 176.2.
CAS — 50-67-9.



Profile

Serotonin, which is synthesised in the body from the essential amino acid tryptophan, is found in the brain, blood platelets, and throughout the gastrointestinal tract. It acts as a biochemical mediator and its roles include involvement in CNS neurotransmission, haemostasis, vascular spasm, and gastrointestinal motility. Abnormalities within the serotonin system are associated with a variety of disorders and many drugs have been developed to manipulate serotonin concentrations.

Serotonin itself may be of value in the treatment of posthypoxic myoclonus (p.470). Concentrations of endogenous serotonin may be increased through synthesis and serotonin precursors have been given for the treatment of depression (see Oxitriptan, p.414 and Tryptophan, p.427).

Some antidepressants increase serotonin concentrations by inhibiting the metabolism of monoamine oxidase type A, the enzyme that deaminates serotonin. Examples include the older non-selective irreversible inhibitors of monoamine oxidase types A and B (MAOIs) such as phenelzine (p.415), and the newer selective reversible inhibitors of monoamine oxidase type A (RIMAs) such as moclobemide (p.411).

Drugs that inhibit the neuronal reuptake of serotonin after release (and thus potentiate its action) are also used in the treatment of depression. They include tricyclic antidepressants such as amitriptyline (p.376), the selective serotonin reuptake inhibitors (SSRIs) such as fluoxetine (p.391), and selective serotonin and noradrenaline reuptake inhibitors (SNRIs) such as venlafaxine (p.427). Some SSRIs and SNRIs are also used in the management of anxiety disorders, and SSRIs have been tried in the management of premature ejaculation. Sibutramine (p.2163) is an SNRI used in the management of obesity.

Serotonin receptors, a major site of drug action, are classified by structure and function into seven families: 5-HT_1, 5-HT_2, 5-HT_3, 5-HT_4, 5-HT_5, 5-HT_6, and 5-HT_7 with each family having further subtypes. Consequently, drugs acting on serotonin receptors exhibit widely differing chemical structures and diverse pharmacological activities depending on which receptor subtype they act on and whether they act as agonists or antagonists. Serotonin receptor activity is complex and it is possible for the same disorder to be treated by both serotonin agonists or antagonists. For example, serotonin antagonists used in the treatment of migraine include the older ergot-derived compounds such as methysergide (p.623) and metergoline (p.2343) whereas the newer triptans such as sumatriptan (p.625) are selective 5-HT_1 agonists. Buspirone (p.965) is a 5-HT_{1A} partial agonist used in the treatment of anxiety disorders. Cisapride (p.1720) is a 5-HT_4 agonist used for gastrointestinal disorders. 5-HT_{2C} agonists are under investigation for obesity.

Many different drugs act as serotonin antagonists. They include sedating antihistamines such as carbinoxamine (p.570), cyproheptadine (p.575), methdilazine (p.585), and promethazine (p.588) used for allergic conditions. Some antiserotonergic antihistamines such as cyproheptadine, oxetorone (p.624), and pizotifen (p.624) are also used in the management of migraine. Antagonists specific for the 5-$HT_{2A/2C}$ receptor include the antihypertensive ketanserin (p.1320), the antipsychotic risperidone (p.1024), and the antidepressant trazodone (p.424). The antipsychotic clozapine (p.981) also has antiserotonergic activity at the 5-$HT_{2A/2C}$ receptor in addition to its other properties. Ondansetron (p.1756) is a 5-HT_3 antagonist used for chemotherapy-induced emesis and postoperative nausea and vomiting.

Drugs with other mechanisms of action involving serotonin systems include fenclonine, an inhibitor of serotonin synthesis that has been used in the treatment of carcinoid syndrome. Reserpine (p.1387) depletes serotonin stores in the brain, heart, and many other organs and has been used in hypertension and psychoses. Fenfluramine (p.2156) and its isomer dexfenfluramine (p.2154) appear to stimulate the release of serotonin and selectively inhibit its reuptake resulting in increased CNS serotonin concentrations; both were formerly used in the treatment of obesity.

Some hallucinogenic drugs of abuse such as bufotenine (p.2270) and lysergide (p.2335) have serotonergic properties.

Serotonin also occurs in stinging nettles (*Urtica dioica*) (p.2409), bananas, and other fruit, and in the stings of wasps and scorpions.

◊ References.

1. Hindle AT. Recent developments in the physiology and pharmacology of 5-hydroxytryptamine. *Br J Anaesth* 1994; **73:** 395–407.
2. Hoyer D, *et al.* International Union of Pharmacology classification of receptors for 5-hydroxytryptamine (serotonin). *Pharmacol Rev* 1994; **46:** 157–203.

Serrapeptase *(rINN)*

Serrapeptasa; Serrapeptasum; Serrapeptidase; Serratia Extracellular Proteinase; Serratiopeptidase.

Серрапептаза

CAS — 37312-62-2; 95077-02-4.

Pharmacopoeias. In *Jpn.*

Profile

Serrapeptase is a proteolytic enzyme derived from *Serratia* spp. It has been taken orally for its supposed action in relieving inflammation and oedema associated with conditions such as trau-