Porphyria. Noretynodrel is considered to be unsafe in patients with porphyria because it has been shown to be porphyrinogenic in *animals* or *in-vitro* systems.

Pregnancy. A woman given noretynodrel during pregnancy to prevent threatened miscarriage gave birth to a female infant showing signs of masculinisation.[1]

1. Wilkins L. Masculinization of female fetus due to use of orally given progestins. *JAMA* 1960; **172:** 1028–32.

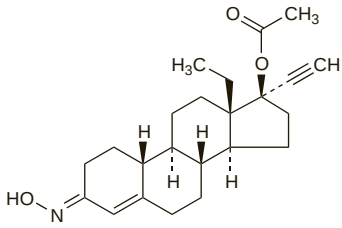
Norgestimate *(BAN, USAN, rINN)*

D-138; Dexnorgestrel Acetime; Norgestimaatti; Norgestimat; Norgestimato; Norgestimatum; ORF-10131; RWJ-10131. 13β-Ethyl-3-hydroxyimino-18,19-dinor-17α-pregn-4-en-20-yn-17β-yl acetate.

Норгестимат

$C_{23}H_{31}NO_3$ = 369.5.

CAS — 35189-28-7.



Pharmacopoeias. In *Eur.* (see p.vii) and *US.*

Ph. Eur. 6.2 (Norgestimate). A white or almost white powder. Practically insoluble in water; freely soluble in dichloromethane; soluble in acetone.

USP 31 (Norgestimate). A mixture of (*E*)- and (*Z*)-isomers having a ratio of (*E*)- to (*Z*)-isomer between 1.27 and 1.78. A white to pale yellow powder. Insoluble in water; sparingly soluble in acetonitrile; freely to very soluble in dichloromethane.

Profile

Norgestimate is a progestogen (see Progesterone, p.2125) structurally related to levonorgestrel (to which it is partly metabolised) that is used as the progestogenic component of combined oral contraceptives (see p.2058) and in menopausal HRT (see p.2071). A typical daily dose is 250 micrograms in monophasic contraceptive preparations, and 180 to 250 micrograms in triphasic preparations. For HRT, a regimen of estradiol daily for 3 days followed by estradiol with norgestimate 90 micrograms daily for 3 days is used; this 6-day cycle is repeated continuously without interruption.

Preparations

USP 31: Norgestimate and Ethinyl Estradiol Tablets.

Proprietary Preparations (details are given in Part 3)

Multi-ingredient: ***Arg.:*** Cilest; Prefest; Tridette; ***Austria:*** Cileste; TriCilest; Vivelle; ***Belg.:*** Cilest; ***Braz.:*** Prefest; ***Canad.:*** Cyclen; Tri-Cyclen; ***Chile:*** Mactex; Neofam; Orlon; Tri-Mactex; Trifas†; ***Cz.:*** Cilest; Pramino; ***Denm.:*** Cilest; ***Fin.:*** Cilest; ***Fr.:*** Cilest; Effiprev; Triafemi; TriCilest; ***Ger.:*** Cilest; Pramino; ***Hung.:*** Cilest; ***Irl.:*** Cilest; ***Israel:*** Ortho Cyclen; ***Mex.:*** Cilest; Prefest; ***Neth.:*** Cilest; ***Pol.:*** Cilest; ***Rus.:*** Cilest (Силест); ***S.Afr.:*** Cilest; Prefesta; TriCilest; ***Swed.:*** Cilest; ***Switz.:*** Cilest; ***Thai.:*** Cilest; TriCilest; ***UK:*** Cilest; ***USA:*** Ortho Cyclen; Ortho Tri-Cyclen; Prefest; Previfem; Sprintec; Tri-Previfem; Tri-Sprintec; TriNessa; ***Venez.:*** Ortrel.

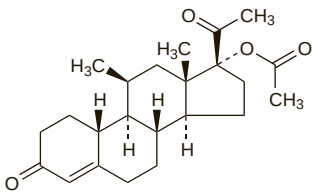
Norgestomet *(BAN, USAN, rINN)*

Norgestometum; SC-21009. 11β-Methyl-3,20-dioxo-19-norpregn-4-en-17α-yl acetate.

Норгестомет

$C_{23}H_{32}O_4$ = 372.5.

CAS — 25092-41-5.



Profile

Norgestomet is a progestogen (see Progesterone, p.2125) used in veterinary medicine with estradiol.

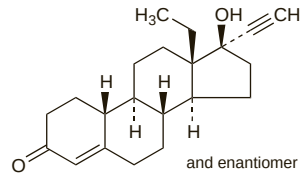
Norgestrel *(BAN, USAN, rINN)*

Norgestreeli; *dl*-Norgestrel; DL-Norgestrel; Norgestrelis; Norgestrelum; Norgesztrel; Wy-3707. (±)-13-Ethyl-17β-hydroxy-18,19-dinor-17α-pregn-4-en-20-yn-3-one.

Норгестрел

$C_{21}H_{28}O_2$ = 312.4.

CAS — 6533-00-2.



and enantiomer

Pharmacopoeias. In *Chin., Eur.* (see p.vii), *Jpn,* and *US.*

Ph. Eur. 6.2 (Norgestrel). A white or almost white crystalline powder. Practically insoluble in water; slightly soluble in alcohol; sparingly soluble in dichloromethane. Protect from light.

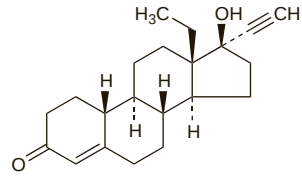
USP 31 (Norgestrel). A white or practically white, practically odourless crystalline powder. Insoluble in water; sparingly soluble in alcohol; freely soluble in chloroform.

Levonorgestrel *(BAN, USAN, rINN)*

Levonorgestreeli; Lévonorgestrel; Levonorgestrelis; Levonorgestrelum; Levonorgesztrel; D-Norgestrel; Wy-5104. (–)-13β-Ethyl-17β-hydroxy-18,19-dinor-17α-pregn-4-en-20-yn-3-one.

Левоноргестрел

CAS — 797-63-7.
ATC — G03AC03.
ATC Vet — QG03AC03.



NOTE. The name Dexnorgestrel has also been used.

Pharmacopoeias. In *Chin., Eur.* (see p.vii), *Int.,* and *US.*

Ph. Eur. 6.2 (Levonorgestrel). A white or almost white crystalline powder. Practically insoluble in water; slightly soluble in alcohol; sparingly soluble in dichloromethane. Protect from light.

USP 31 (Levonorgestrel). A white or practically white, odourless powder. Practically insoluble in water; slightly soluble in alcohol; soluble in chloroform. Protect from light.

Adverse Effects and Precautions

As for progestogens in general (see Progesterone, p.2125). See also under Hormonal Contraceptives, p.2059.

Incidence of adverse effects. After the introduction of levonorgestrel in a subdermal implant formulation in February 1991, the US FDA had received about 5800 reports of adverse effects as of December 1993 (out of an estimated 891 000 implants distributed).[1] Serious adverse effects associated with the implant included 24 cases of infection related to insertion of the implant, 15 cases of stroke and 39 of benign intracranial hypertension, 3 cases of thrombocytopenic purpura and 6 of thrombocytopenia (1 fatal). None of the reporting rates for these disorders exceeded the expected rate in this population. In a 5-year cohort study[2] of more than 16 000 women who received either a levonorgestrel implant or an IUD (not progestogen-releasing), or underwent sterilisation, there was no significant risk of major morbidity associated with the implant, although there were moderately elevated risks of gallbladder disease and raised blood pressure in current users.

1. Wysowski DK, Green L. Serious adverse events in Norplant users reported to the Food and Drug Administration's MedWatch Spontaneous Reporting System. *Obstet Gynecol* 1995; **85:** 538–42.
2. Meirik O, *et al.* Safety and efficacy of levonorgestrel implant, intrauterine device, and sterilization. *Obstet Gynecol* 2001; **97:** 539–47.

Benign intracranial hypertension. Intracranial hypertension, presenting as headaches, vomiting, and visual obscuration associated with florid bilateral papilloedema developed in 2 patients 4 to 5 months after subdermal implantation of levonorgestrel.[1] Despite a further 56 cases reported to various drug monitoring centres, and 70 cases known to the manufacturers,[2] it remained unclear whether the drug actually caused intracranial hypertension, but removal of implants was recommended in patients in whom intracranial pressure increased.

1. Alder JB, *et al.* Levonorgestrel implants and intracranial hypertension. *N Engl J Med* 1995; **332:** 1720–1.
2. Weber ME, *et al.* Levonorgestrel implants and intracranial hypertension. *N Engl J Med* 1995; **332:** 1721.

Breast feeding. Levonorgestrel was detected in breast milk and the circulation of breast-fed infants during the use of either a levonorgestrel IUD, subcutaneous implant, or progestogen-only oral contraceptive.[1] A review[2] of studies of a levonorgestrel implant used during lactation concluded that it did not adversely affect the duration of lactation, infant growth or development. Further studies of a levonorgestrel IUD[3] and implant[4] also found no adverse effect on lactation or infant growth. The implant study[4] did find an increased incidence of mild respiratory, skin, and eye diseases in infants in the first year of life, but the possibility of bias or chance could not be excluded. The American Academy of Pediatrics considers that levonorgestrel is usually compatible with breast feeding.[5] Progestogen-only contraceptives should not be started until several weeks after birth if the woman is breast feeding (see Breast Feeding under Hormonal Contraceptives, p.2066).

In a pharmacokinetic study[6] using a single oral dose of levonorgestrel 1.5 mg, the drug concentration peaked between 2 and 4 hours in breast milk and then fell rapidly. The authors suggested that breast-feeding women who are given this dose of levonorgestrel for emergency contraception should be advised to breast feed immediately before the dose, then discard milk for at least 8 hours but not more than 24 hours.

1. Shikary ZK, *et al.* Transfer of levonorgestrel (LNG) administered through different drug delivery systems from the maternal circulation into the newborn infant's circulation via breast milk. *Contraception* 1987; **35:** 477–86.
2. Díaz S. Contraceptive implants and lactation. *Contraception* 2002; **65:** 39–46.
3. Shaamash AH, *et al.* A comparative study of the levonorgestrel-releasing intrauterine system Mirena versus the copper T380A intrauterine device during lactation: breast-feeding performance, infant growth and infant development. *Contraception* 2005; **72:** 346–51.
4. Schiappacasse V, *et al.* Health and growth of infants breastfed by Norplant contraceptive implants users: a six-year follow-up study. *Contraception* 2002; **66:** 57–65.
5. American Academy of Pediatrics. The transfer of drugs and other chemicals into human milk. *Pediatrics* 2001; **108:** 776–89. Correction. *ibid.*; 1029. Also available at: http://aappolicy.aappublications.org/cgi/content/full/pediatrics%3b108/3/776 (accessed 27/06/08)
6. Gainer E, *et al.* Levonorgestrel pharmacokinetics in plasma and milk of lactating women who take 1.5 mg for emergency contraception. *Hum Reprod* 2007; **22:** 1578–84.

Effects on the blood. Studies[1-3] of women who had been given different levonorgestrel subcutaneous implants found that over 5 years there were various changes in blood clotting factors, fibrinolytic activity, and platelet number and aggregation, some of which persisted even 6 months after removal of the implants. However, these haemostatic changes did not result in activation of the coagulation system or a state of hypercoagulation.

1. Singh K, *et al.* Evaluation of hemostatic function following Norplant implant removal. *Adv Contracept* 1993; **9:** 49–58.
2. Singh K, *et al.* Evaluation of hemostatic function following Norplant-2 rods removal. *Adv Contracept* 1993; **9:** 241–50.
3. Koh SCL, *et al.* A prospective study on the effects of reformulated 2-rod Norplant implant on haemostasis after five years of use. *J Obstet Gynaecol Res* 1999; **25:** 177–83.

Effects on carbohydrate metabolism. For a mention that levonorgestrel has been reported to be the most potent progestogen associated with hyperinsulinaemia when used as a combined oral contraceptive, see p.2061.

Glucocorticoid effects. Reference to the minimal suppressive effect of subdermal levonorgestrel on adrenal function.[1]

1. Toppozada MK, *et al.* Effect of Norplant implants on the pituitary-adrenal axis function and reserve capacity. *Contraception* 1997; **55:** 7–10.

Myasthenia gravis. Myasthenia gravis occurring after insertion of a levonorgestrel implant improved on removal of the implant.[1]

1. Brittain J, Lange LS. Myasthenia gravis and levonorgestrel implant. *Lancet* 1995; **346:** 1556.

Porphyria. Levonorgestrel has been associated with acute attacks of porphyria and is considered unsafe in porphyric patients.

Pregnancy. Adverse effects in infants whose mothers had received oral contraceptives containing norgestrel during early pregnancy have included tracheo-oesophageal fistula in one infant[1] and inoperable hepatoblastoma in another.[2] However, many epidemiological studies have failed to show any association between fetal malformations and oral contraceptives, even when used inadvertently during pregnancy, see p.2067.

1. Frost O. Tracheo-oesophageal fistula associated with hormonal contraception during pregnancy. *BMJ* 1976; **2:** 978.
2. Otten J, *et al.* Hepatoblastoma in an infant after contraceptive intake during pregnancy. *N Engl J Med* 1977; **297:** 222.

Venous thromboembolism. For mention that levonorgestrel-containing combined oral contraceptives appeared to be associated with a lower incidence of venous thromboembolism than desogestrel- or gestodene-containing preparations, see p.2063. See also Effects on the Blood, above.

Interactions

As for progestogens in general (see Progesterone, p.2126). See also under Hormonal Contraceptives, p.2067.

Pharmacokinetics

Levonorgestrel is rapidly and almost completely absorbed after an oral dose, and undergoes little first-pass hepatic metabolism. It is highly bound to plasma proteins; 42 to 68% to sex hormone binding globulin and 30 to 56% to albumin. The proportion bound to sex hormone binding globulin is higher when it is given with an oestrogen. Levonorgestrel and norgestrel are metabolised in the liver to sulfate and glucuronide conjugates, which are excreted in the urine and to a lesser extent in the faeces. Levonorgestrel is distributed into breast milk.

◊ References.

1. Fotherby K. Levonorgestrel: clinical pharmacokinetics. *Clin Pharmacokinet* 1995; **28:** 203–15.

Uses and Administration

Norgestrel and its active (–)-isomer levonorgestrel are progestogens (see Progesterone, p.2126) derived from nortestosterone. They are more potent inhibitors of ovulation than norethisterone and have androgenic activity. Levonorgestrel is more commonly used than norgestrel and is twice as potent. For example, levonorgestrel 37.5 micrograms is equivalent to norgestrel 75 micrograms.

They are both used as **hormonal contraceptives** (see p.2069). The typical daily dose is the equivalent of:

- 30 or 37.5 micrograms of levonorgestrel as an oral progestogen-only contraceptive
- 150 micrograms of levonorgestrel in monophasic combined oral contraceptives (doses may range from a low dose of 100 micrograms of levonorgestrel in some preparations up to 250 micrograms in others; a preparation containing 90 micrograms of levonorgestrel for continuous use without a tablet-free interval is also available)
- 50 to 125 micrograms of levonorgestrel in triphasic preparations

Subcutaneous implants containing levonorgestrel may be used for long-acting progestogen-only contraception. Insertion and removal must be carried out by personnel fully trained in the technique. One available product consists of 2 implants, each containing 75 mg of levonorgestrel. It should be inserted under the skin within the first 7 days of the menstrual cycle, and is effective for up to 5 years. Another product consisting of 6 implants, which also provided up to 5 years of contraception, is no longer widely marketed. Each implant contained 36 mg of levonorgestrel. Uterine, cervical, and vaginal devices containing levonorgestrel have also been investigated. An intra-uterine device is available for contraception or **menorrhagia**, containing a total of 52 mg of levonorgestrel which is released at an initial rate of 20 micrograms per 24 hours. The device is effective for 5 years.

For **emergency contraception** (p.2071), levonorgestrel may be given alone in a single oral dose of 1.5 mg within 72 hours of coitus (preferably as soon as possible). Alternatively, a dose of 750 micrograms is given within 72 hours of coitus (preferably as soon as possible), and repeated after 12 hours. Another regimen uses levonorgestrel 500 micrograms plus ethinylestradiol 100 micrograms, given within 72 hours of coitus and repeated after 12 hours.

Both levonorgestrel and norgestrel are used as the progestogenic component of **menopausal HRT** (see p.2076). Typical regimens are the equivalent of 75 to 250 micrograms of levonorgestrel orally for 10 to 12 days of a 28-day cycle. Levonorgestrel may also be given via a combined transdermal patch, releasing 10 micrograms per 24 hours, which is applied once weekly for 2 weeks of a 4-week cycle. Alternatively, a patch releasing 7 or 15 micrograms per 24 hours with an oestrogen is applied once weekly for continuous HRT. The intra-uterine levonorgestrel device described above may be used for up to 4 years with oestrogen replacement therapy.

Administration. ***IMPLANTS.*** Some references to the use of levonorgestrel by subcutaneous implant for hormonal contraception.[1-3]

1. Coukell AJ, Balfour JA. Levonorgestrel subdermal implants: a review of contraceptive efficacy and acceptability. *Drugs* 1998; **55:** 861–87.
2. Sivin I. Risks and benefits, advantages and disadvantages of levonorgestrel-releasing contraceptive implants. *Drug Safety* 2003; **26:** 303–35.
3. Power J, *et al.* Subdermal implantable contraceptives versus other forms of reversible contraceptives or other implants as effective methods of preventing pregnancy. Available in The Cochrane Database of Systematic Reviews; Issue 3. Chichester: John Wiley; 2007 (accessed 27/06/08).

INTRA-UTERINE DEVICES. Some references to the use of levonorgestrel-releasing intra-uterine devices for contraception[1-7] and menopausal HRT.[8,9]

1. Backman T, *et al.* Length of use and symptoms associated with premature removal of the levonorgestrel intrauterine system: a nation-wide study of 17,360 users. *Br J Obstet Gynaecol* 2000; **107:** 335–9.
2. French RS, *et al.* Levonorgestrel-releasing (20 microgram/day) intrauterine systems (Mirena) compared with other methods of reversible contraceptives. *Br J Obstet Gynaecol* 2000; **107:** 1218–25.
3. Backman T. Benefit-risk assessment of the levonorgestrel intrauterine system in contraception. *Drug Safety* 2004; **27:** 1185–1204.
4. Guillebaud J. The levonorgestrel intrauterine system: a clinical perspective from the UK. *Ann N Y Acad Sci* 2003; **997:** 185–93.
5. Jensen JT. Contraceptive and therapeutic effects of the levonorgestrel intrauterine system: an overview. *Obstet Gynecol Surv* 2005; **60:** 604–12.
6. Peled Y, *et al.* Levonorgestrel-releasing intrauterine system as an adjunct to estrogen for the treatment of menopausal symptoms—a review. *Menopause* 2007; **14:** 550–4.
7. Faculty of Sexual and Reproductive Healthcare Clinical Effectiveness Unit. FSRH guidance (November 2007): intrauterine contraception. Available at: http://www.ffprhc.org.uk/admin/uploads/CEUGuidanceIntrauterineContraceptionNov07.pdf (accessed 18/07/08)
8. Sitruk-Ware R. The levonorgestrel intrauterine system for use in peri- and postmenopausal women. *Contraception* 2007; **75** (suppl): S155–S160.
9. Chrisman C, *et al.* The levonorgestrel-releasing intrauterine system: an updated review of the contraceptive and noncontraceptive uses. *Clin Obstet Gynecol* 2007; **50:** 886–97.

Menorrhagia. Although oral cyclical progestogens have limited efficacy in the treatment of menorrhagia (p.2126), the levonorgestrel-containing intra-uterine device appears to be particularly useful in reducing menstrual blood loss. The *BNF* notes that another treatment should be considered if bleeding does not improve within 3 to 6 months of insertion. The use of levonorgestrel has been systematically reviewed.[1]

1. Lethaby AE, *et al.* Progesterone or progestogen-releasing intrauterine systems for heavy menstrual bleeding. Available in The Cochrane Database of Systematic Reviews; Issue 4. Chichester: John Wiley; 2005 (accessed 27/06/08).

Preparations

BP 2008: Levonorgestrel and Ethinylestradiol Tablets; Levonorgestrel Tablets; Norgestrel Tablets;
USP 31: Levonorgestrel and Ethinyl Estradiol Tablets; Norgestrel and Ethinyl Estradiol Tablets; Norgestrel Tablets.

Proprietary Preparations (details are given in Part 3)
Arg.: Imediat N†; Microlut; Mirena†; Norgeal†; Norgestrel Continuo; Norgestrel Max; Ovulol; Postinor-2; Segurite; ***Austral.:*** Microlut; Microval; Mirena; Postinor-2; ***Austria:*** Mirena; Postinor; Vikela; ***Belg.:*** Microlut; Microval†; Mirena; Norlevo; Postinor; ***Braz.:*** Minipil; Minipil-2 Post; Mirena; Norlevo†; Nortrel; Pilem; Poslov; Postinor Uno; Postinor-2; Pozato; Prevyol-2; ***Canad.:*** Mirena; Norplant†; Plan B; ***Chile:*** Microlut†; Microval; Mirena; Postinor-2†; Tacer; ***Cz.:*** Escapelle; Mirena; Norplant†; Postinor; ***Denm.:*** Levonova; Microluton; Norlevo; Postinor; ***Fin.:*** Jadelle; Levonova†; Microluton; Mirena; Norlevo; Postinor†; ***Fr.:*** Microval; Mirena; Norlevo; Vikela†; ***Ger.:*** 28 mini; Duofem; Levogynon; Microlut; Mikro-30†; Mirena; ***Gr.:*** Mirena; Norlevo; Postinor; ***Hong Kong:*** Mirena; Postinor-2; ***Hung.:*** Escapelle; Mirena; Rigesoft; ***India:*** Ecee2; Norlevo; Pill 72; ***Indon.:*** Mirena; Norplant; Postinor-2; ***Irl.:*** Levonelle; Mirena; Norlevo; ***Israel:*** Mirena; Postinor-2; ***Ital.:*** Levonelle; Mirena; Norlevo; ***Malaysia:*** Escapelle; Madonna; Mirena; Norplant†; Postinor; ***Mex.:*** Glanique; Hispatrel; Microlut; Mirena; Post-Day; Postinor-2; Silogin; ***Neth.:*** Jadelle; Mirena; Norlevo; Postinor; Vikela; ***Norw.:*** Jadelle; Levonova; Microluton†; Norlevo; Postinor; ***NZ:*** Levonelle; Microlut; Microval†; Mirena; Postinor-2; ***Philipp.:*** Mirena; ***Pol.:*** Escapelle; Mirena; Postinor-Duo; ***Port.:*** Jadelle; Levonelle; Mirena; Norlevo; Postinor; ***Rus.:*** Escapelle (Эскапел); Microlut (Микролют); Mirena (Мирена); Postinor (Постинор); ***S.Afr.:*** Microval; Mirena; Norlevo; ***Singapore:*** Mirena; Norplant†; Postinor; ***Spain:*** Jadelle; Mirena; Norlevo; Postinor; ***Swed.:*** Follistrel; Jadelle; Levonova; Norlevo; Norplant†; Postinor; ***Switz.:*** Microlut; Mirena; Norlevo; ***Thai.:*** Jadelle; Madonna; Mirena; Norplant; Postinor; ***Turk.:*** Mirena; Norlevo; ***UK:*** Levonelle; Microval†; Mirena; Neogest†; Norgeston; Postinor-2; ***USA:*** Mirena; Ovrette†; Plan B; ***Venez.:*** Jadelle; Microval; Mirena; Norlevo; Postinor-2.

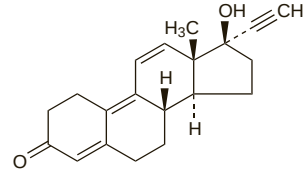
Multi-ingredient: ***Arg.:*** Afrodita; Anubis; April; Ciclocur; Cuarcic; Dos Dias N; Evelea; Fem 7 Combi†; Femexin; Loette; Microfem; Microgynon; Microvlar; Miranova; Neogynon; Nordette; Nordiol†; Norgestrel Minor; Norgestrel Plus; Ovral†; Plenifem†; Tridestan N; Trinordiol; Triquilar; ***Austral.:*** Biphasil†; Levlen ED; Loette; Logynon ED; Microgynon; Microlevlen ED; Monofeme; Nordette; Nordiol†; Sequilar ED; Trifeme; Triphasil; Triquilar; ***Austria:*** Climabelle†; Cyclacur; Donnina; FemSeven Combi; Loette; Madonella; Microgynon; Neo-Stediril; Neogynon†; Ovranette; Perikursal; Sequilar; Stediril D; Trigynon; Trinordiol; ***Belg.:*** Binordiol†; Cyclocur; Feminova Plus; Lowette; Microgynon; Neo-Stediril†; Neogynon†; Stediril 30; Stediril D†; Trigynon; Trinordiol; ***Braz.:*** Anfertil; Ciclo; Ciclofemme; Ciclon†; Cicloprimogyna; Concepnor; Evanor; Gestrelan; Level; Levordiol; Lindisc Duo†; Lovelle; Microvlar; Neovlar; Nociclin; Nordette; Normamor; Postoval†; Trinordiol; Triquilar; ***Canad.:*** Alesse; Min-Ovral; Ovral; Triphasil; Triquilar; ***Chile:*** Alesse; Anovulatorio Micro-Dosis; Anulette; Fem 7 Combi; Femitres; Innova Cd; Loette†; Microfemin†; Microgynon; Modutrol; Nordette; Nordiol; Norvetal; Postoval†; Progyluton; Trinordiol; Triquilar; Trolit; ***Cz.:*** Anteovin†; Climara Duo†; Cyclo-Menorette†; CycloOstrogynal†; Gravistat; Klimonorm; Loette; Microgynon; Minisiston; Stediril†; Tri-Regol; Trinordiol; Triquilar; Trisiston†; ***Denm.:*** Cyclo-Progynon; Fironetta†; Gynatrol†; Malonetta; Microgyn; Neogentrol†; Neogynon; Nuvelle; Tetragynon†; Triminetta; Trinordiol; Triquilar; ***Fin.:*** Climara Duo†; Cyclabil; FemSeven Combi; Microgynon; Neo-Primovlar†; Trikvilar; Trinordiol†; ***Fr.:*** Adepal; Daily; Ludeal; Minidril; Stediril; Tetragynon†; Trinordiol; ***Ger.:*** Cyclo-Menorette; Cyclo-Progynova; CycloOstrogynal; Fem 7 Combi; Femigoa; Femranette mikro†; Gravistat; Klimonorm; Leios; Microgynon; Minisiston; Miranova; MonoStep; Neo-Stediril†; Neogynon†; NovaStep; Ostronara; Perikursal†; Sequilar†; Stediril 30†; Stediril D†; Stediril†; Tetragynon†; Triette†; Trigoa; Trinordiol†; Triquilar; Trisiston; TriStep†; ***Gr.:*** Cyclacur; Loette; Neogynon†; Nordette†; Nordiol†; Nuvelle†; Ovral†; Trinordiol†; Triquilar†; ***Hong Kong:*** Eugynon; Klimonorm†; Microgynon; Neogynon†; Nordette; Rigevidon; Tri-Regol; Trinordiol†; Triquilar†; ***Hung.:*** Anteovin; Cyclo-Menorette†; FemSeven Combi; Klimonorm; Loette; Miranova†; Ovidon; Rigevidon; Tri-Regol; Trinordiol; Triquilar; ***India:*** Duoluton-L; Ovilow†; Ovipauz-L†; Ovral; Triquilar; ***Indon.:*** Cyclo-Progynova; Microdiol; Microgynon; Pil Keluarga Berencana; Planak; Trinordiol; Triquilar; ***Irl.:*** Logynon; Microgynon 30†; Microlite; Nuvelle†; Ovran†; Ovranette; Prempak-C; Trinordiol; ***Israel:*** Logynon†; Microgynon; Neogynon†; Nordette; Progyluton; Trinordiol†; ***Ital.:*** Combiseven; Egogyn; Eugynon†; Evanor-D†; Femity; Loette; Microgynon; Miranova; Novogyn; Nuvelle; Nuvelle TS†; Ovranet†; Trigynon; Trinordiol†; ***Jpn:*** Ange; ***Malaysia:*** Klimonorm†; Loette; Microgynon 30; Nordette; Progyluton; Rigevidon; Tri-Regol†; Trinordiol; Triquilar†; ***Mex.:*** Alesse; Femexin; Letinnov; Microgynon; Neogynon; Nordet; Nordiol; Ovral; Progyluton; Trinordiol; Triquilar; ***Mon.:*** FemseptCombi; ***Neth.:*** Alesse; Cyclocur; Fem 7 Sequi; Levlen†; Logynon; Lovette; Microgynon; Miranova; Neogynon; Prempak-C†; Rigevidon; Stediril; Trigynon; Trinordiol; ***Norw.:*** Cyclabil; Follimin†; Loette; Microgynon; Tetragynon†; Trinordiol; Trionetta; ***NZ:*** Levlen ED; Loette; Microgynon; Monofeme; Nordette; Nordiol†; Nuvelle; Ovral†; Prempak-C†; Trifeme; Triphasil; Triquilar; ***Philipp.:*** Femenal; Lady; Logynon; Microgynon; Nordette; Nordiol; Rigevidon; Seif; Trinordiol; Trust Pill; ***Pol.:*** Anteovin; Cyclo-Progynova; Fem 7 Combi; Gravistat; Klimonorm; Microgynon; Minisiston; Rigevidon; Stediril; Tri-Regol; Trinordiol; Triquilar; Trisiston; ***Port.:*** Climara Duo†; Femsete Combi; Femsete Evo; Microginon; Miranova; Neomonovar†; Nuvelle; Progyluton; Tetragynon; Trinordiol; Triquilar; ***Rus.:*** Anteovin (Антеовин); Cyclo-Progynova (Цикло-прогинова); Klimonorm (Климонорм); Microgynon (Микрогинон); Minisiston (Минизистон); Ovidon (Овидон); Rigevidon (Ригевидон); Tri-Regol (Три-Регол); Triquilar (Триквилар); Trisiston (Тризистон); ***S.Afr.:*** Biphasil; E-Gen-C; Loette; Logynon ED; Miranova; Nordette; Nordiol; Ovral; Postoval; Triphasil; ***Singapore:*** Loette; Microgynon; Nordette; Prempak-C; Progyluton; Trinordiol; Triquilar†; ***Spain:*** Auroclim; Loette; Microgynon; Neogynona; Nuvelle; Ovoplex; Progyluton; Triagynon; Triciclor; ***Swed.:*** Cyclabil; Follimin; Follinett; Neovletta; Trinordiol; Trionetta; Triregol; ***Switz.:*** Binordiol†; Cyclacur; Fem 7 Combi; Microgynon; Miranova; Neogynon†; Ologyn; Stediril 30; Stediril D; Tetragynon; Trinordiol; Triquilar; ***Thai.:*** Anna†; Cyclo-Progynova; Eugynon 250†; FMP†; Jeny-FMP†; Klimonorm; Microgest; Microgynon; Microlenyn; Nordette; R-Den†; Riget; Rigevidon; Triquilar; ***Turk.:*** Cyclo-Progynova; Lo-Ovral; Microgynon; Miranova; Preven; Triquilar; ***UK:*** Cyclo-Progynova 1 mg; Cyclo-Progynova 2 mg; Eugynon 30†; FemSeven Conti; FemSeven Sequi; FemTab Sequi†; Logynon; Microgynon 30; Nuvelle; Ovran 30; Ovranette; Prempak-C; Trinordiol†; ***USA:*** Alesse; Aviane; ClimaraPro; Cryselle; Enpresse; Jolessa; Lessina; Levlen; Levlite; Levora; Lo/Ovral; Lutera; Lybrel; Nordette; Ovral; Portia; Preven†; Quasense; Seasonale; Seasonique; Sronyx; Tri-Levlen; Triphasil; Trivora; ***Venez.:*** Alesse; Minigynon; Neogynon; Nordette; Nordiol; Ovral; Progyluton; Rigevidon; Tri-Regol; Trinordiol; Triquilar.

Norgestrienone *(rINN)*

Norgestrienona; Norgestriénone; Norgestrienonum. 17β-Hydroxy-19-nor-17α-pregna-4,9,11-trien-20-yn-3-one.

Норгестриенон

$C_{20}H_{22}O_2$ = 294.4.
CAS — 848-21-5.
ATC — G03AC07.
ATC Vet — QG03AC07.



Profile

Norgestrienone is a progestogen (see Progesterone, p.2125) structurally related to norethisterone that has been used as an oral contraceptive (see p.2058). Typical doses have been 2 mg daily with an oestrogen, and 350 micrograms daily when used alone.

Preparations

Proprietary Preparations (details are given in Part 3)
Multi-ingredient: ***Fr.:*** Planor†.