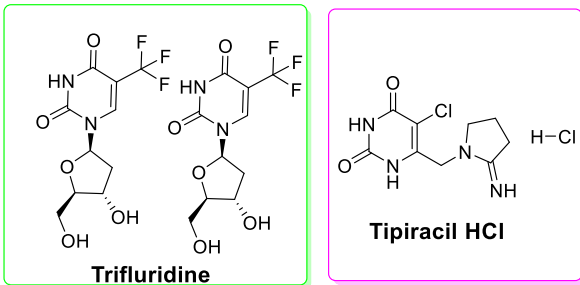




Certificate of Analysis

| | | |
|---------------------|---|--------------|
| MedKoo Cat#: | Product Name: | Lot#: |
| 205641 | TAS-102 (Trifluridine / tipiracil HCl) | MDK50915 |

| Chemical name | |
|--|---|
| TAS102= Trifluridine and tipiracil HCl (molar ratio = 1.0 : 0.5 or 2:1) Trifluridine: 1-((2R,4S,5R)-4-hydroxy-5-(hydroxymethyl)tetrahydrofuran-2-yl)-5-(trifluoromethyl)pyrimidine-2,4(1H,3H)-dione. Tipiracil HCl: 5-chloro-6-((2-iminopyrrolidin-1-yl)methyl)pyrimidine-2,4(1H,3H)-dione hydrochloride | |
| Synonyms | |
| TAS102; TAS102; TAS 102; Trifluridine / tipiracil hydrochloride (1:0.5). | |
| Chemical structure | CAS# and Theoretical analysis |
|  <p>Trifluridine</p> <p>Tipiracil HCl</p> <p>TAS-102 = Trifluridine: tipiracil HCl, molar ratio = 2:1</p> | MedKoo Cat#: 205641 Name: TAS-102 (Trifluridine / tipiracil HCl) CAS#: 733030-01-8 Lot#MDK50915 Chemical Formula: C ₂₉ H ₃₄ Cl ₂ F ₆ N ₈ O ₁₂ Molecular Weight: 871.53 |

| Analysis item | Specifications / Results |
|---------------------------|--|
| Appearance | White solid powder |
| Structure | ¹ H-NMR analysis matches the structure. MS analysis gives the correct molecule weight. Both NMR and MS data are consistent with those reported in the literature. |
| Purity (HPLC) | >99.0% |
| Solubility | Soluble in DMSO |
| Conclusion | This product conforms with MedKoo's quality standards |
| Shipping condition | Shipped under ambient temperature as non-hazardous chemical. This product is stable for a few weeks during ordinary shipping and time spent in customs. |
| Storage condition | Short term storage (weeks): 0 – 4 °C under dry condition Long term storage (months): -20 °C under dry condition |
| Self life | At least 5 years if properly stored. |

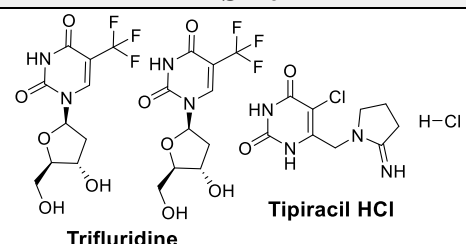
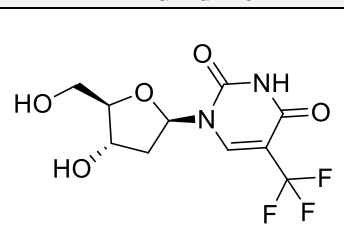
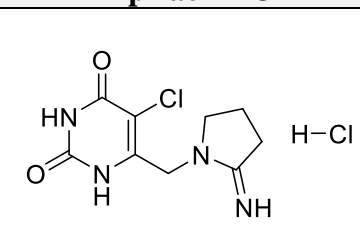
CAUTION: NOT FULLY TESTED. FOR RESEARCH ONLY, NOT FOR HUMAN USE

Table 1: Chemical composition of TAS-102

Note: TAS102= Trifluridine and tipiracil HCl (molar ratio = 1.0 : 0.5 or 2:1)

| TAS-102 (FW=871.53) | | Trifluridine (FW = 296.20) | | Tipiracil HCl (FW = 279.12) | |
|------------------------|-------------------|--------------------------------|------------------------|---------------------------------|-------------------------|
| Molar ratio | | 1 | | 0.5 | |
| TAS102 (gram) | TAS-102 (mmol) | Trifluridine (gram) | Trifluridine (mmol) | Tipiracil HCl (gram) | Tipiracil HCl (mmol) |
| W | 1.1474•W | 0.6797•W | 2.2948•W | 0.3203 •W | 1.1474•W |
| 1 | 1.1474 | 0.6797 | 2.2948 | 0.3203 | 1.1474 |
| 2 | 2.2948 | 1.3594 | 4.5896 | 0.6406 | 2.2948 |
| 3 | 3.4422 | 2.0391 | 6.8844 | 0.9609 | 3.4422 |
| 4 | 4.5896 | 2.7188 | 9.1792 | 1.2812 | 4.5896 |
| 5 | 5.737 | 3.3985 | 11.474 | 1.6015 | 5.737 |
| 6 | 6.8844 | 4.0782 | 13.7688 | 1.9218 | 6.8844 |
| 7 | 8.0318 | 4.7579 | 16.0636 | 2.2421 | 8.0318 |
| 8 | 9.1792 | 5.4376 | 18.3584 | 2.5624 | 9.1792 |
| 9 | 10.3266 | 6.1173 | 20.6532 | 2.8827 | 10.3266 |
| 10 | 11.474 | 6.797 | 22.948 | 3.203 | 11.474 |

Table 2 chemical structure and theoretical calculation

| TAS-102 | Trifluridine | Tipiracil HCl |
|--|---|---|
|  <p>Trifluridine</p> <p>Tipiracil HCl</p> |  |  |
| Chemical Formula: $C_{29}H_{34}Cl_2F_6N_8O_{12}$ Molecular Weight: 871.53 Elemental Analysis: C, 39.97; H, 3.93; Cl, 8.14; F, 13.08; N, 12.86; O, 22.03 | Chemical Formula: $C_{10}H_{11}F_3N_2O_5$ Exact Mass: 296.06201 Molecular Weight: 296.20 Elemental Analysis: C, 40.55; H, 3.74; F, 19.24; N, 9.46; O, 27.01 | Chemical Formula: $C_9H_{12}Cl_2N_4O_2$ Exact Mass: 278.03373 Molecular Weight: 279.12 Elemental Analysis: C, 38.73; H, 4.33; Cl, 25.40; N, 20.07; O, 11.46 |