Supplementary Table I. Comparison between Amifostine and Palifermin based on different parameters

Parameter	Amifostine	Palifermin
Mechanism of action	A prodrug, undergoes dephosphorylation by alkaline phosphatase to yield a pharmacologically active free thiol metabolite[77].	Stimulates the growth of cells in the mucosa. It also binds to the KGF receptor, stimulating epithelial cell proliferation, differentiation, and upregulation of cytoprotective mechanisms[78].
Efficacy	Therapeutically employed to decrease the occurrence of neutropenia-related fever & infection induced by DNA-binding chemotherapeutic agents[79].	Used to decrease severe oral mucositis associated with autologous hematopoietic cell transplantation[78].
Toxicity	Common side effects: hypocalcaemia, diarrhoea, nausea, vomiting, sneezing, somnolence, and hiccups. Serious adverse reactions: hypotension, erythema multiforme, Stevens-Johnson syndrome, toxic epidermal necrolysis, immune hypersensitivity syndrome, erythroderma, anaphylaxis, and loss of consciousness (rarely)[80].	Toxic effects: hyperkeratosis of the skin & tongue, as well as goblet cell hyperplasia in the gastrointestinal tract. Adverse reactions: itching, rash, skin redness, alterations in mouth & tongue sensation, and changes in taste perception may occur[81].
Cost	Costs: $481 for a 500 mg injection, with a lower price of $93.60 for a pack of 5[82].	Priced: 5,000 euros per treatment for a 70 kg patient, while Kepivance (5.16 mg) costs around $10,477[83].
Availability	Clinigen is the sole supplier of amifostine injection (Ethyol)[84].	Marketed as Kepivance by the FDA[83].
Administration route	Intravenous[85].	Intravenous[86].
Onset & duration of action	The onset is within 15-30 min & duration of action[87] is 2-3 h	The onset of action, which is dose-dependent epithelial cell proliferation, occurs in 48 h& it has an elimination half-life of 4.5 h[88].
Clinical indications	To safeguard the kidneys from the drug cisplatin in patients undergoing treatment for ovarian cancer. Additionally, it is employed to alleviate dryness in the mouth resulting from radiation therapy following surgery for head & neck cancer[89].	To prevent and expedite the healing of severe mouth and throat sores that may arise due to chemotherapy and radiation therapy utilised in the treatment of blood or bone marrow cancers[90].
Dosing frequency	For nephrotoxicity, 910 mg/m² IV (15-minute infusion), 30 minutes before chemotherapy & for Xerostomia 200 mg/m² IV (3-min infusion), 15-30 min before radiation therapy[91].	The recommended dosage is 60 mcg/kg administered intravenously as a bolus once daily for three consecutive days prior to and three consecutive days following myelotoxic therapy[92].
Patient-specific considerations	Patients with congestive heart failure, history of heart attack, heart disease, heart rhythm problems, kidney disease, or history of stroke or transient ischemic attacks should use with caution.	Patients who are allergic to palifermin, being treated with melphalan, or breastfeeding should not take palifermin.
Contraindications	Contraindicated in patients with known hypersensitivity to amifostine, aminothiol compounds, or any component of the formulation. It should not be used in patients who are dehydrated or have taken blood pressure medication in the past 24 h[93].	Contraindicated in patients with non-hematologic carcinoma. Its safety & effectiveness have not been established in individuals with non-hematologic cancers[88].
Interactions	Interact with various medications, including blood pressure medications, antihistamines, anti-seizure drugs, sleep or anxiety medications, muscle relaxants, narcotics, psychiatric medications, & cough-and-cold products[94].	Interact with 131 drugs, of which 1 is major (fexinidazole), & 130 are moderate (cabazitaxel, Cabozantinib, brexucabtagene autoleucel, *etc.*)[95].
Patient compliance	Encapsulated in sustained-release microspheres may improve patient compliance by minimizing injection frequency & blood concentration-associated side effects[93].	Improves patient-reported outcomes, reducing mouth and throat soreness and improves the ability to eat, drink, & swallow[96].
Long-term effects	Long-term effects include potential skin irritation & hypertension[93].	Used to prevent or heal mouth sores in chemotherapy patients, may cause side effects like rash, fever, and changes in taste, but these usually subside as the body adjusts to the medication[97].
Research & clinical trial data	Reduce esophagitis, reduce late lung toxicity, reduce the clinical symptoms such as dyspnoea and cough, & reduce the incidence of pneumonitis & fibrosis[98].	Demonstrated efficacy in protecting oral and intestinal epithelia from the adverse effects of radiation and chemotherapy[99].