CLAIMS

1. A pharmaceutical composition when used in preventing or treating infectious diseases, comprising:
an adenylate kinase (ADK) protein as an active ingredient,
wherein the infectious diseases are caused by gram-negative bacteria.

2. The pharmaceutical composition of claim 1, wherein either (a) the ADK protein is derived from *Mycobacterium tuberculosis*; or (b) the ADK protein is represented by SEQ ID NO: 1; or (c) the ADK protein is encoded by a nucleic acid sequence represented by SEQ ID NO:2.

3. The pharmaceutical composition of claim 2, wherein the gram-negative bacteria are one or more species selected from the group consisting of *Escherichia*, *Pseudomonas*, *Acinetobacter*, *Salmonella*, *Klebsiella*, *Neisseria*, *Enterobacter*, *Shigella*, *Moraxella*, *Helicobacter*, *Stenotrophomonas*, *Bdellovibrio* and *Legionella* genera.

4. The pharmaceutical composition of claim 3, wherein the gram-negative bacteria are one or more selected from the group consisting of *Escherichia coli*, *Pseudomonas aeruginosa*, *Pseudomonas fluorescens*, *Pseudomonas putida*, *Pseudomonas chlororaphis*, *Pseudomonas pertucinogena*, *Pseudomonas stutzeri*, *Pseudomonas syringae*, *Acinetobacter baumannii*, *Acinetobacter lwoffii*, *Acinetobacter calcoaceticus*, *Acinetobacter haemolyticus*, *Salmonella enterica*, *Salmonella bongori*, *Salmonella enteritidis*, *Salmonella typhimurium*, *Salmonella gallinarum*, *Salmonella pullorum*, *Salmonella mbandaka*, *Salmonella choleraesuis*, *Salmonella thompson*, *Salmonella infantis*, *Salmonella derby*, *Klebsiella pneumoniae*, *Klebsiella granulomatis*, *Klebsiella oxytoca*, *Klebsiella terrigena*, *Neisseria gonorrhoeae*, *Neisseria meningitidis*, *Enterobacter aerogenes*, *Enterobacter cloacae*, *Shigella boydii*, *Shigella dysenteriae*, *Shigella flexneri*, *Shigella sonnei*, *Moraxella catarrhalis*, *Moraxella lacunata*, *Moraxella bovis*, *Helicobacter pylori*, *Helicobacter heilmannii*, *Helicobacter felis*, *Helicobacter mustelae*, *Helicobacter fennelliae*, *Helicobacter rappini*, *Helicobacter hepaticus*, *Helicobacter bilis*, *Helicobacter pullorum*, *Stenotrophomonas maltophilia*,

Stenotrophomonas nitritireducens, Bdellovibrio bacteriovorus, Legionella pneumophila, Legionella anisa, Legionella birminghamensis, Legionella bozemanii, Legionella cincinnatiensis, Legionella dumoffii, Legionella feeleii, Legionella gormanii, Legionella hackeliae, Legionella israelensis, Legionella jordanis, Legionella lansingensis, Legionella longbeachae, Legionella maceachernii, Legionella micdadei, Legionella oakridgensis, Legionella sainthelensi, Legionella tucsonensis, and *Legionella wadsworthii*.

5. A food composition when used in preventing or improving infectious diseases, comprising:
an adenylate kinase (ADK) protein as an active ingredient,
wherein the infectious diseases are caused by gram-negative bacteria.

6. A pharmaceutical composition for preventing or treating sepsis or septic shock, comprising:
an adenylate kinase (ADK) protein and an antibiotic as active ingredients.

7. The pharmaceutical composition of claim 6, wherein the antibiotic is one or more selected from the group consisting of an aminoglycoside-, penicillin-, cephalosporin-, tetracycline-, macrolide-, streptogramin-, glycopeptide-, peptide-, flavophospholipol-, polyether-, phenicol-, lincosamide-, rifamycin-, polyene-, sulfonamide-, benzylpyrimidine-, quinolone-, fluoroquinolone- and nitrofuran-based antibiotic.

8. The pharmaceutical composition of claim 7, wherein the aminoglycoside-based antibiotic is one or more selected from the group consisting of gentamicin, kanamycin, ribostamycin, tobramycin, sisomicin, astromicin, isepamicin, arbekacin, dibekacin, spectinomycin, netilmicin, micronomycin, streptomycin, dihydrostreptomycin, apramycin, destomycin, hygromycin, amikacin, and neomycin.

9. A food composition for preventing or improving sepsis or septic shock, comprising:

an adenylate kinase (ADK) protein and an antibiotic as active ingredients.