

## APPENDIX 5

**Table 2: RUTI Trial Preventative Formula (RUTI-p)**

<p style="text-align: center;"><b>Name (Botanical, PinYin, Common names)</b></p> <p style="text-align: center;"><b>Traditional daily dose (grams)</b></p>	<p style="text-align: center;"><b>Active compounds</b></p>	<p style="text-align: center;"><b>Pharmacological effects</b></p>	<p style="text-align: center;"><b>Clinical trial data</b></p>	<p style="text-align: center;"><b>Adverse effects/Toxicity</b></p>	<p style="text-align: center;"><b>Traditional Use</b></p>
<p><i>Astragalus membranaceus</i> Moench</p> <p>Huang Qi</p> <p>Milkvetch root</p> <p>15-30g</p>	<p>The roots of <i>Astragalus membranaceus</i> contain biologically active saponins (including 11 astragalosides and one soyasaponin), flavones including kaempferol, quercetin); and polysaccharides (including Astragalans I,II and III.<sup>1,2,3</sup></p>	<p>Supports immune function by eg a) increasing phagocytic activity of macrophages, (b) increasing proinflammatory cytokines IL1, IL6 and TNF, and (c) increasing levels of lymphocyte stimulatory IL2 and IL2 receptor expression<sup>1,2,3,4</sup>. May enhance TLR4 gene expression in bladder epithelial cells to promote local neutrophil and cytokine anti microbial activity<sup>5</sup>.</p> <p>May enhance physiological metabolism of renal cells (eg increasing glycogen granules, acid</p>	<p>Preliminary data supporting its use for asthma, chemotherapy induced leucopenia and viral myocarditis<sup>6,7</sup>.</p> <p>Demonstrated immunomodulatory and anti microbial effects in a number of common infections<sup>8,9,10</sup> including UTIs<sup>11</sup>.</p>	<p>No adverse reactions observed in mice with dosages as high as 100g/kg of the herb.</p> <p>LD<sub>50</sub> of the decoction of the herb administered by intraperitoneal injection was 39.82g/kg.<sup>1</sup></p>	<p>Invigorates the vital energy, protects against infection, promotes healing and regulates the ‘water pathways’<sup>2,3</sup>.</p>

		<p>phosphatase and succinic dehydrogenase).<sup>1</sup></p> <p>Mild diuretic effect (0.2g/kg increased urine output by 64%)<sup>1</sup></p> <p>Anti-inflammatory effect (may reduce histamine induced increase in vascular permeability)<sup>1</sup></p> <p>Hepatoprotective effect <sup>2</sup></p>			
<p><i>Sophora flavescens</i> Aiton</p> <p>Ku Shen</p> <p>6-15g</p>	<p>The known chemical components of <i>Sophora flavescens</i> include alkaloids (3.3%) - principally matrine and oxymatrine; flavonoids (1.5%), alkylxanthenes, quinones, triterpene glycosides, fatty acids, and essential oils<sup>1,3</sup>.</p>	<p>In vitro research shows the flavonoid extracted from Ku Shen (Kurarinone) has a strong inhibitory action on the growth of MRSA (Methicillin-Resistant <i>Staphylococcus aureus</i>) and VRE (Vancomycin resistant Enterococci) bacteria<sup>12</sup>.</p> <p><i>Sophora flavescens</i> also has an inhibitory in vitro action against E Coli (Zhu), and B-haemolytic Streptococcus<sup>1</sup>.</p>	<p>There is preliminary evidence supporting the use of <i>Sophora flavescens</i> for asthma, psoriasis, eczema, arrhythmia, and to prevent leukopenia during cancer chemotherapy<sup>2</sup>.</p>	<p>Occasional reports of mild, transient, gastrointestinal disturbances<sup>2</sup>.</p> <p>The LD<sub>50</sub> for injection of the herbal extract in mice corresponded to a dose of 15 grams of herb per kg (in human terms, this corresponds, roughly, to a single dose of 1 kg of the herb)<sup>1</sup>.</p>	<p>Clears Heat and drains Damp to treat diarrhea, skin diseases, and relieve painful, frequent urination<sup>3</sup>.</p>

<p><i>Lindera aggregata</i> var. <i>aggregata</i></p> <p>Wu Yao</p> <p>Lindera Root</p> <p>6-12g</p>	<p>Contains a number of alkaloids, volatile oils and sesquiterpene esters<sup>1,3</sup>.</p>	<p>In vitro research suggests this herb exhibits inhibitory effects on the production of inflammatory mediators from macrophages via blocking NF-kappaB and MAPKs signaling pathways<sup>13</sup>.</p>	<p>In vitro analysis suggests Lindera essential oils have an anti-bacterial action against common bacteria including E Coli<sup>14</sup>.</p> <p>Preliminary evidence that this herb might help slow down diabetic nephropathy<sup>15</sup>.</p>	<p>No reported adverse events.</p>	<p>Circulates vital energy and alleviates pain, warms the ‘kidney’ and regulates urination<sup>2,3</sup>.</p>
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<sup>2</sup> Chen JK & Chen TT (2004). Chinese Medical Herbology and Pharmacology. Art of Medicine Press.

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**APPENDIX 6 RUTI Trial Acute formulae (RUTI-a)**

<b>Name (Botanical, PinYin, Common names)  Traditional daily dose (grams)</b>	<b>Active compounds</b>	<b>Pharmacological effects</b>	<b>Clinical trial data</b>	<b>Adverse effects/Toxicity</b>	<b>Traditional Use</b>
<p><i>Oldenlandia diffusa</i> (Willd.) Roxb.  Bai Hua She She Cao  Oldenlandia  15-60g</p>	<p>Contains Iridoid and Flavonoid glycosides (eg Oldenlandosides A and B), Anthroquinones, Triterpenes, and p-coumaric acid<sup>1,2,3</sup>.</p>	<p>Has demonstrated an in vitro anti-bacterial action against Staphylococcus aureus, E coli, Pseudomonas aeruginosa<sup>4</sup>.</p> <p>Has anti-inflammatory effect by inhibiting the production of tumor necrosis factor (TNF)-<math>\alpha</math>, interleukin (IL)-6 and prostaglandin E(2) (PGE(2))<sup>5</sup>.</p> <p>May increase leukocyte phagocytic activity<sup>1</sup>.</p> <p>Oldenlandia diffusa extract effectively inhibited the growth of several cancer cell lines<sup>6</sup>.</p>	<p>Commonly used in Chinese clinical trials as part of a formula for the treatment of acute urinary tract infections.</p> <p>Also used in many trials for the treatment of hepatitis and a number of different cancers.<sup>1,2,3</sup></p>	<p>LD<sub>50</sub> of the extract of the herb by intraperitoneal administration was 104g/kg<sup>2 1</sup></p>	<p>Clears Heat and eliminates toxins used for skin diseases, for snakebites, urinary tract infections and recently as an anti-cancer herb.<sup>2,3</sup>.</p>

<p><i>Phellodendron amurense</i> Rupr.</p> <p>Huang Bai</p> <p>Amur Cork tree</p> <p>9-15g</p>	<p>Contains a number of isoquinoline alkaloids (bereberine is the best documented and is present at levels ranging from 0.6-2.5%).</p> <p>Triterpenes, phytosterols, and phenolic compounds have also been isolated.<sup>1,3.</sup></p>	<p>Anti-inflammatory effects and anti-microbial effects noted in vitro and in vivo-including against MRSA when used singly or in conjunction with ampicillin and oxacillin.<sup>7,8,9</sup></p>	<p>Preliminary evidence of the effectiveness of the herbs in treating acute and chronic bacillary dysentery<sup>1</sup>.</p>	<p>No side effects reported for oral administration.</p> <p>LD<sub>50</sub> after intraperitoneal administration was 2.7g/kg<sup>1</sup>.</p>	<p>Clears Heat, dries Damp and clears toxins traditionally used for infectious diarrhoea, urinary tract infections, and skin diseases<sup>2,3</sup>.</p>
<p><i>Desmodium styracifolium</i> (Osbeck) Merr.</p> <p>Jin Qian Cao</p> <p>Gold Coin herb</p> <p>15-30g</p>	<p>Contains a number of flavonoids and alkaloids, followed by terpenoids, steroids, phenols, phenylpropanoids, glycosides and a number of volatile oils<sup>1,2,3</sup>.</p>	<p>Anti-inflammatory action<sup>10</sup></p> <p>Prevents and treats renal stones<sup>1,2,10</sup></p>	<p>Commonly used in clinical trials for the treatment of UTIs<sup>1,2,3,10,11</sup>.</p>	<p>No reports of adverse reactions despite large dosages administered<sup>1</sup>.</p>	<p>Clears Heat, drains Damp and dissolves stones for the treatment of urinary tract infections, kidney, bladder and gall bladder stones. Also used for jaundice, skin diseases<sup>2,3</sup>.</p>

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