

or each  $R^9$  is independently a  $C_1$ - $C_6$ alkyl that together with N they are attached to form a  $C_3$ - $C_8$ heterocycloalkyl, wherein the  $C_3$ - $C_8$ heterocycloalkyl ring optionally contains an additional heteroatom selected from N, O and S, and wherein the  $C_1$ - $C_6$  alkyl,  $C_1$ - $C_6$  heteroalkyl,  $C_3$ - $C_6$ cycloalkyl, or  $C_3$ - $C_8$ heterocycloalkyl groups of  $R^9$  are each optionally substituted with 1 to 3 substituents independently selected from —CN,  $R^{11}$ , —OR<sup>11</sup>, —SR<sup>11</sup>, —C(O)R<sup>11</sup>, —OC(O)R<sup>11</sup>, —C(O)OR<sup>11</sup>, NR<sup>11</sup>R<sup>12</sup>, —C(O)NR<sup>11</sup>R<sup>12</sup>, —S(O)<sub>2</sub>R<sup>11</sup>, —S(O)R<sup>11</sup>, —S(O)<sub>2</sub>NR<sup>11</sup>R<sup>12</sup>, —NR<sup>11</sup>S(O)<sub>2</sub>R<sup>11</sup>, —P(O)(OR<sup>11</sup>)<sub>2</sub>, and —OP(O)(OR<sup>11</sup>)<sub>2</sub>;

each  $R^{10}$  is independently selected from aryl,  $C_3$ - $C_8$ cycloalkyl,  $C_3$ - $C_8$ heterocycloalkyl and heteroaryl, wherein the aryl,  $C_3$ - $C_8$ cycloalkyl,  $C_3$ - $C_8$ heterocycloalkyl and heteroaryl groups are optionally substituted with 1 to 3 substituents selected from halogen, —R<sup>8</sup>, —OR<sup>8</sup>, —LR<sup>9</sup>, —LOR<sup>9</sup>, —N(R<sup>9</sup>)<sub>2</sub>, —NR<sup>9</sup>C(O)R<sup>8</sup>, —NR<sup>9</sup>CO<sub>2</sub>R<sup>8</sup>, —CO<sub>2</sub>R<sup>8</sup>, —C(O)R<sup>8</sup> and —C(O)N(R<sup>9</sup>)<sub>2</sub>;

$R^{11}$  and  $R^{12}$  are independently selected from H,  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ heteroalkyl,  $C_1$ - $C_6$ haloalkyl, aryl, heteroaryl,  $C_3$ - $C_8$ cycloalkyl, and  $C_3$ - $C_8$ heterocycloalkyl, wherein the  $C_1$ - $C_6$ alkyl,  $C_1$ - $C_6$ heteroalkyl,  $C_1$ - $C_6$ haloalkyl, aryl, heteroaryl,  $C_3$ - $C_8$ cycloalkyl, and  $C_3$ - $C_8$ heterocycloalkyl groups of  $R^{11}$  and  $R^{12}$  are each optionally substituted with 1 to 3 substituents independently selected from halogen, —CN, R<sup>8</sup>, —OR<sup>8</sup>, —C(O)R<sup>8</sup>, —OC(O)R<sup>8</sup>, —C(O)OR<sup>8</sup>, —N(R<sup>9</sup>)<sub>2</sub>, —NR<sup>9</sup>C(O)R<sup>8</sup>, —NR<sup>9</sup>C(O)OR<sup>8</sup>, —C(O)N(R<sup>9</sup>)<sub>2</sub>,  $C_3$ - $C_8$ heterocycloalkyl, —S(O)<sub>2</sub>R<sup>8</sup>, —S(O)<sub>2</sub>N(R<sup>9</sup>)<sub>2</sub>, —NR<sup>9</sup>S(O)<sub>2</sub>R<sup>8</sup>,  $C_1$ - $C_6$ haloalkyl and  $C_1$ - $C_6$ haloalkoxy;

or  $R^{11}$  and  $R^{12}$  are each independently  $C_1$ - $C_6$ alkyl and taken together with the N atom to which they are attached form an optionally substituted  $C_3$ - $C_8$ heterocycloalkyl ring optionally containing an additional heteroatom selected from N, O and S;

each  $R^4$  is independently selected from halogen, —R<sup>8</sup>, —R<sup>7</sup>, —OR<sup>7</sup>, —OR<sup>8</sup>, —R<sup>10</sup>, —SR<sup>8</sup>, —NO<sub>2</sub>, —CN, —N(R<sup>9</sup>)<sub>2</sub>, —NR<sup>9</sup>C(O)R<sup>8</sup>, —NR<sup>9</sup>C(S)R<sup>8</sup>, —NR<sup>9</sup>C(O)N(R<sup>9</sup>)<sub>2</sub>, —NR<sup>9</sup>C(S)N(R<sup>9</sup>)<sub>2</sub>, —NR<sup>9</sup>CO<sub>2</sub>R<sup>8</sup>, —NR<sup>9</sup>NR<sup>9</sup>C(O)R<sup>8</sup>, —NR<sup>9</sup>NR<sup>9</sup>C(O)N(R<sup>9</sup>)<sub>2</sub>, —NR<sup>9</sup>NR<sup>9</sup>CO<sub>2</sub>R<sup>8</sup>, —C(O)C(O)R<sup>8</sup>, —C(O)CH<sub>2</sub>C(O)R<sup>8</sup>, —CO<sub>2</sub>R<sup>8</sup>, —(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>R<sup>8</sup>, —C(O)R<sup>8</sup>, —C(S)R<sup>8</sup>, —C(O)N(R<sup>9</sup>)<sub>2</sub>, —C(S)N(R<sup>9</sup>)<sub>2</sub>, —OC(O)N(R<sup>9</sup>)<sub>2</sub>, —OC(O)R<sup>8</sup>, —C(O)N(OR<sup>8</sup>)R<sup>8</sup>, —C(NOR<sup>8</sup>)R<sup>8</sup>, —S(O)<sub>2</sub>R<sup>8</sup>, —S(O)<sub>3</sub>R<sup>8</sup>, —SO<sub>2</sub>N(R<sup>9</sup>)<sub>2</sub>, —S(O)R<sup>8</sup>, —NR<sup>9</sup>SO<sub>2</sub>N(R<sup>9</sup>)<sub>2</sub>, —NR<sup>9</sup>SO<sub>2</sub>R<sup>8</sup>, —P(O)(OR<sup>8</sup>)<sub>2</sub>, —OP(O)(OR<sup>8</sup>)<sub>2</sub>, —P(O)(OR<sup>10</sup>)<sub>2</sub>, —OP(O)(OR<sup>10</sup>)<sub>2</sub>, —N(OR<sup>8</sup>)R<sup>8</sup>, —CH=CHCO<sub>2</sub>R<sup>8</sup>, —C(=NH)—N(R<sup>9</sup>)<sub>2</sub>, and —(CH<sub>2</sub>)<sub>n</sub>NHC(O)R<sup>8</sup>; or two adjacent  $R^4$  substituents form a 5-6 membered ring that contains up to two heteroatoms as ring members;

n is, independently at each occurrence, 0, 1, 2, 3, 4, 5, 6, 7 or 8;

each m is independently selected from 1, 2, 3, 4, 5 and 6, and

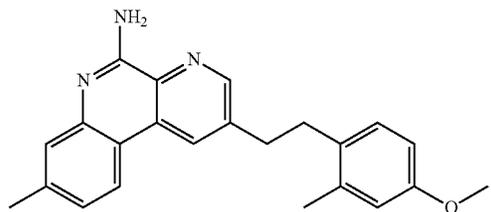
t is 1, 2, 3, 4, 5, 6, 7 or 8;

and (b) an antigen derived from a hemorrhagic fever virus.

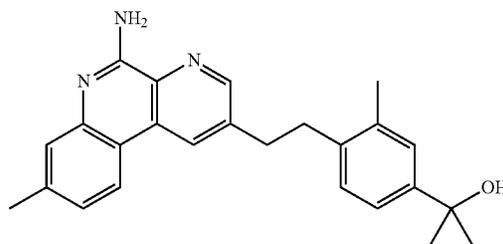
15. The immunogenic composition of claim 14, further comprising (c) an adjuvant.

16. (canceled)

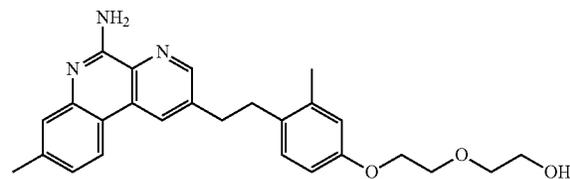
17. The immunogenic composition of claim 14, wherein the benzonaphthyridine TLR7 agonist is 2-(4-methoxy-2-methylphenethyl)-8-methylbenzo[f][1,7]naphthyridin-5-amine having the structure of



18. The immunogenic composition of claim 14, wherein the benzonaphthyridine TLR7 agonist is 2-(4-(2-(5-amino-8-methylbenzo[f][1,7]naphthyridin-2-yl)ethyl)-3-methylphenyl)propan-2-ol having the structure of



19. The immunogenic composition of claim 14, wherein the benzonaphthyridine TLR7 agonist is 2-(2-(4-(2-(5-amino-8-methylbenzo[f][1,7]naphthyridin-2-yl)ethyl)-3-methylphenoxy)ethoxy)ethanol having the structure of



20-32. (canceled)

33. The method of claim 3, wherein the immune response comprises induction of a cytokine profile.

34-48. (canceled)

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