## Simian Immunodeficiency Viruses

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<th>Animal Group(s) Affected</th>
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<td>Found in many African non-human primates. Macaques susceptible.</td>
<td>Mainly horizontal through sexual contact and bite wounds. Vertical transmission reported by virus-infected milk</td>
<td>Clinical disease occurs in only a minority of infected individuals. When pathogenic, disease depends on the nature of the organ and opportunistic infections.</td>
<td>Severe and fatal in non-natural host</td>
<td>None specific although same treatment options for HIV could be used</td>
<td>Test collection and determine risk to benefit of introductions to naïve animals.</td>
<td>Infection should be considered a zoonotic disease since many SIV species can grow in human cell lines <em>in vitro</em>.</td>
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Fact Sheet compiled by: Sam Rivera; updated by Natalie Mylniczenko  
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Fact Sheet Reviewed by: William Switzer; Karen Strait  

**Susceptible animal groups:** Natural host can be susceptible to disease and older animals may succumb to AIDS-related disease. Non-natural host infections can be fatal. Asian macaques are highly susceptible to fatal infection.

**Causative organism:** SIVagm, SIVasc, SIV bkm, SIVblu, SIVcol, SIVcpz, SIVdeb, SIVden, SIVdrl, SIVgor, SIVgsn, SIVl’hoest, SIVmnd 1 and 2, SIVmon, SIVmus, SIV olc, SIVrem, SIVschm, SIVsmm, SIVstm, SIVsun, SIVsyk, SIVtal, SIVwrc.

**Zoonotic potential:** The virus should be considered a zoonotic disease. Many SIV species can grow in human cell lines *in vitro*. HIV-1 originated from SIVcpz and SIVgor; HIV-2 from SIVsmm.

**Distribution:** Natural infections occur in Africa. Infection in captive non-human primates occurs worldwide. Cross species viral ‘jumping’ has been reported but appears relatively rare.

**Incubation period:** Strain and host dependent, as short as a few weeks in non-natural host or as long as several decades in natural host.

**Clinical signs:** Clinical disease does not usually present in natural hosts. However, when disease occurs, common findings are lymphadenopathy and diarrhea. Other signs may include wasting, malabsorption, and weight loss. Cardiac disease, arteriopathies, transient cutaneous erythematous maculopapular rash, and CNS involvement can be observed. Secondary infections can be due to immunodeficiency and hypergammaglobulinemia can be observed.

**Post mortem, gross, or histologic findings:** Lymphoid organs may be hypertrophied. Other findings depend on affected organ systems: encephalitis, cardiac necrosis, myocarditis, coronary or systemic arteriopathy, glomerulosclerosis, pneumonia, follicular hyperplasia and fragmentation in lymphoid tissues, extramedullary hematopoiesis in lymph nodes and follicular and paracortical hyperplasia, epididymitis, prostatitis, urethritis, malignant lymphomas.

**Diagnosis:** Serology (ELISA, Western blot), PCR, virus isolation. If positive on serology, SIV genotyping is recommended to identify natural reservoirs that are often African non-human primates. Screening is typical with ELISA testing, but confirmation should be completed with Western blot or PCR. It should be noted that
highly divergent SIVs may not react completely with HIV and SIVmac antigens used in commercial assays. Viral isolation efficiency is highly variable.

**Material required for laboratory analysis:** Whole blood, serum/plasma, body fluids, tissues

**Relevant diagnostic laboratories:**
- Pathogen Detection Laboratory
  - California National Primate Research Center
  - University of California
  - Road 98 & Hutchison
  - Davis, California 95616
  - (530) 752-8242
  - Fax: (530) 752-4816
  - PDL@primate.ucdavis.edu
- VRL-San Antonio
  - P.O. Box 40100
  - 7540 Louis Pasteur, Suite 200
  - San Antonio, Texas 78229
  - 877-615-7275
  - Fax: 210-615-7771
- Zoologix Inc.
  - 9811 Owensmouth Avenue, Suite 4
  - Chatsworth, California 91311-3800
  - 818-717-8880
  - Fax: 818-717-8881
  - info@zoologix.com
  - zoologix.com/primate/index.htm
- Primate Diagnostic Services Laboratory (PDSL)
  - Washington National Primate Research Center
  - University of Washington
  - Seattle Washington 98195-7330
  - diagnostic@wanprc.org

**Treatment:** None

**Prevention and control:** Identify status of animals in collection. Determine risk to benefit of maintaining a closed population in the face of population needs.

**Suggested disinfectant for housing facilities:** 70% ethanol, formalin, 10% household bleach (sodium hypochlorite), most lipophylic detergents, quaternary ammonium chloride, and Lysol can be used.

**Notification:** None at this time.

**Measures required under the Animal Disease Surveillance Plan:** None at this time.

**Measures required for introducing animals to infected animal:** Determine current status of both groups of these animals then determine risk to benefit of introducing negative individuals to positive individuals. It is important to remember that natural reservoirs of particular SIV variants exist.

**Conditions for restoring disease-free status after an outbreak:** Life-long infection results in inability to restore disease free status.

**Experts who may be consulted:**
References:

5. Etienne, L., E. Nerrienet, M. LeBreton, G.T. Bibila, Y. Foupouapouognigni, D. Rouset, A.
immunodeficiency virus infection. J. Gen. Vir. 80: 1557–1568.