**Supplementary Material**

**Table S1.** Adenovirus reference genomes and their Genbank number included in the phylogenetic analysis.

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| **Virus Abbrv.** | **Virus name** | **Virus genus** | **Host common name** | **Host scientific name** | **Genbank ID** |
| BAdV-D | Bovine Atadenovirus D | Atadenovirus | Domestic cow | *Bos taurus* | AF036092.3 |
| DAdV-A | Duck Atadenovirus A | Atadenovirus | Domestic duck | *Anas platyrhynchos domesticus* | AC000004.1 |
| EsAdV-1 | Estrildidae Adenovirus 1 | Atadenovirus | Long-tailed finch | *Poephila acuticauda* | MK413652 |
| LiAdV-A | Lizard Atadenovirus A | Atadenovirus | Mexican beaded lizard | *Heloderma horridum* | KJ156523.1 |
| OAdV-D | Ovine Atadenovirus D | Atadenovirus | Domestic sheep | *Ovia aries* | U40839.3 |
| PAdV-A | Psittacine Atadenovirus A | Atadenovirus | Southern mealy amazon | *Amazona farinosa* | KJ675568.1 |
| SnAdV-A | Snake Atadenovirus A | Atadenovirus | Corn snake | *Elaphe guttata* | DQ106414.1 |
| DAdV-B | Duck Aviadenovirus B | Aviadenovirus | Muscovy duck | *Cairina moschata* | KJ469653.1 |
| FAdV-A | Fowl Aviadenovirus A | Aviadenovirus | Chicken | *Gallus gallus* | AC000014.1 |
| FAdV-D | Fowl Aviadenovirus D | Aviadenovirus | Domestic chicken | *Gallus gallus domesticus* | KT862806.1 |
| FAdV-C | Fowl Aviadenovirus C | Aviadenovirus | Chicken | *Gallus gallus* | GU188428.1 |
| FAdV-B | Fowl Aviadenovirus B | Aviadenovirus | Chicken | *Gallus gallus* | KC493646.1 |
| FAdV-E | Fowl Aviadenovirus E | Aviadenovirus | Domestic chicken | *Gallus gallus domesticus* | KT862808.1 |
| GoAdV-A | Goose Aviadenovirus A | Aviadenovirus | Domestic goose | *Anser anser domestica* | JF510462.1 |
| PiAdV-A | Pigeon Aviadenovirus A | Aviadenovirus | Domestic pigeon | *Columba livia domestica* | FN824512.1 |
| PiAdV-B | Pigeon Aviadenovirus B | Aviadenovirus | Domestic pigeon | *Columba livia domestica* | KX121164.1 |
| PiAdV-5 | Pigeon Adenovirus 5 | Aviadenovirus | Domestic pigeon | *Columba livia domestica* | DNA pol (partial) KX555532.1 |
| PsAdV-C | Psittacine Aviadenovirus C | Aviadenovirus | Senegal parrot | *Poicephalus senegalus* | MH580295.1 |
| PsAdV-B | Psittacine Aviadenovirus B | Aviadenovirus | Red-bellied parrot | *Poicephalus rufiventris* | KX577802.1 |
| TAdV-B | Turkey Aviadenovirus B | Aviadenovirus | Turkey | *Meleagris gallopavo* | GU936707.2 |
| TAdV-C | Turkey Aviadenovirus C | Aviadenovirus | Turkey | *Meleagris gallopavo* | KF477312.1 |
| TAdV-D | Turkey Aviadenovirus D | Aviadenovirus | Turkey | *Meleagris gallopavo* | KF477313.1 |
| BAdV-A | Bovine Mastadenovirus A | Mastadenovirus | Domestic cow | *Bos taurus* | AC000191.1 |
| BtAdV-A | Bat Mastadenovirus A | Mastadenovirus | Rickett's big-footed bat | *Myotis ricketti* | NC016895.2 |
| CAdV-A | Canine Mastadenovirus A | Mastadenovirus | Domestic dog | *Canis familiaris* | U77082.1 |
| CSLAdV-A | California Sea Lion Mastadenovirus A | Mastadenovirus | California sea lion | *Zalophus californianus* | KJ563221.1 |
| EAdV-A | Equine Mastadenovirus A | Mastadenovirus | Domestic horse | *Equus caballus* | JN418926.1 |
| HAdV-A | Human Mastadenovirus A | Mastadenovirus | Human | *Homo sapien* | AC000005.1 |
| HAdV-D | Human Mastadenovirus D | Mastadenovirus | Human | *Homo sapien* | EF121005.1 |
| MAdV-A | Murine Mastadenovirus A | Mastadenovirus | House mouse | *Mus musculus* | AC000012.1 |
| MAdV-B | Murine Mastadenovirus B | Mastadenovirus | House mouse | *Mus musculus* | HM049560.1 |
| PAdV-A | Porcine Mastadenovirus A | Mastadenovirus | Domestic pig | *Sus scrofa domesticus* | AC000189.1 |
| SkAdV-A | Skunk Mastadenovirus A | Mastadenovirus | North American skunk | *Conepatus leuconotus* | KP238322.1 |
| SqAdV-A | Squirrel Mastadenovirus A | Mastadenovirus | Red squirrel | *Sciurus vulgaris* | KY427939.1 |
| TSAdV-A | Tree Shrew Mastadenovirus A | Mastadenovirus | Common tree shrew | *Tupaia glis* | AC000190.1 |
| CSPAdV-A | Penguin Siadenovirus A | Siadenovirus | Chinstrap penguin | *Pygoscelis antarcticus* | KP144329.1 |
| EsAdV-2 | Estrildidae Adenovirus 2 | Siadenovirus | Long-tailed finch | *Poephila acuticauda* | MK413651 |
| FrAdV-A | Frog Siadenovirus A | Siadenovirus | Leopard frog | *Rana pipiens* | AF224336.1 |
| GFAdV-1 | Gouldian Finch Adenovirus 1 | Siadenovirus | Gouldian finch | *Erythrura gouldiae* | DNA pol (partial) KF031569.1 Hexon (partial) AGU01649.1 |
| GtAdV-A | Great Tit Siadenovirus A | Siadenovirus | Great tit | *Parus major* | DNA pol (partial) FJ849795.1 |
| PiAdV-4 | Pigeon Adenovirus 4 | Siadenovirus | Domestic pigeon | *Columba livia domestica* | DNA pol (partial) KX555531.1 |
| PiAdV-3 | Pigeon Adenovirus 3 | Siadenovirus | Domestic pigeon | *Columba livia domestica* | DNA pol (partial) KX555530.1 |
| PsAdV-2 | Psittacine Adenovirus 2 | Siadenovirus | Plum headed parakeet | *Psittacula cyanocephala* | DNA pol (partial) ABU48656.1 |
| RAdV-A | Raptor Siadenovirus A | Siadenovirus | Harris Hawk | *Parabuteo unicinctus* | NC015455.1 |
| SPSAdV-A | Skua Siadenovirus A | Siadenovirus | South polar skua | *Catharacta maccormicki* | HM585353.1 |
| TAdV-A | Turkey Siadenovirus A | Siadenovirus | Turkey | *Meleagris gallopavo* | AC000016.1 |