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| **Number of sequences and type of sample** | **ID *GenBank*** | **# sequences**  **(Reference)** |
|  |  |  |
| 52  Complete breast cancer  sequences (16.5 kb) | EF660933.1, EF660934.1, EF660935.1, EF660936.1, EF660937.1, EF660938.1, EF660939.1, EF660940.1, EF660941.1, EF660942.1, EF660943.1, EF660944.1, EF660945.1, EF660946.1, EF660947.1,  EF660948.1, EF660949.1, EF660950.1, EF660951.1, EF660952.1. | 20  (Gasparre et al. 2007) |
| EF114271.1, EF114273.1, EF114276.1, EF114279.1, EF114282.1, EF114285.1, EF114288.1, EF429133.1, EF429136.1, EF429139.1. | 10  (Wang et al. 2007) |
| GU592034.1, GU592035.1, GU592036.1, GU592037.1, GU592038.1, GU592039.1, GU592040.1, GU592041.1, GU592042.1, GU592043.1, GU592044.1, GU592045.1, GU592046.1, GU592047.1, GU592048.1. | 15  (Fendt et al. 2011) |
| MH550161.1, MH550162.1, MH550163.1, MH550164.1, MH550165.1. | 5  (Hernández-de la Cruz et a. 2018) |
| AB626609.1, AB626610.1. | 2  (Imanishi et al. 2011) |
| 38  Partial breast cancer  sequences (less than 0.5 Kb) | HG825991.1, HG825992.1, HG825993.1, HG825994.1, HG825995.1,   HG825996.1, HG825997.1, HG825998.1, HG825999.1, HG826000.1,   HG826001.1, HG826002.1, HG826003.1, HG826004.1 | 14  Ghatak et al. 2014. |
| DQ143184.1, DQ143185.1, DQ143186.1, DQ143187.1, DQ143188.1,  DQ143189.1, DQ143190.1, DQ143191.1, DQ143192.1, DQ143193.1,  DQ143194.1, DQ143195.1, DQ143196.1, DQ143197.1, DQ143198.1,  DQ143199.1, DQ143200.1, DQ143201.1, DQ143202.1, DQ143203.1, DQ143204.1, DQ143205.1, DQ143206.1, DQ143207.1 | 24  Darvishi et al. 2015 |
| 34  Controls samples  (16.5 kb) | EF114272.1, EF114275.1, EF114278.1, EF114281.1, EF114284.1, EF429135.1, EF429138.1, EF429141.1, EF114287.1. | 9  Distant normal tissue obtained of same patients with breast cancer contralateral breast (Wang et al. 2007). |
| EF114271.1, EF114274.1, EF114277.1, EF114280.1, EF114283.1, EF114286.1, EF114289.1, EF429140.1, EF429137.1, EF429134.1 | 10  Para-cancerous normal tissue  (Wang et al. 2007). |
| GU592019.1, GU592020.1, GU592021.1, GU592022.1, GU592023.1,  GU592024.1, GU592025.1, GU592026.1, GU592027.1, GU592028.1, GU592029.1, GU592030.1, GU592031.1, GU592032.1, GU592033.1. | 15  Laser capture microdissection obtained from biopsies and macroscopic appearance (Fendt et al. 2011). |
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**Table S1.** Origin and references of mtDNA sequences associated with breast cancer and controls used for the analysis.