**APPENDIX A**

This appendix contains the complete sequence that is necessary to run the DMF platform for automated ELISA assay with Neutravidin-HRP as conjugate. To improve readability colour code is used for the commands, attributes, messages and comments in the code.

public void Load\_FinalAssay()

{

Path = new List<Points>();

//Beads - Separation 1

Path.Add(new Points(45, 0));

Path.Add(new Points(44, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(36, 0, -1, "[MAGON]Waiting for magnet on"));

Path.Add(new Points(37, 0));

Path.Add(new Points(38, 0));

Path.Add(new Points(39, 0));

Path.Add(new Points(40, 0));

Path.Add(new Points(41, 0));

Path.Add(new Points(41, 0, -1, "[MAGOFF]Waiting for magnet off"));

//Sample - beads collection 1

Path.Add(new Points(29, 0, true)); //New droplet

Path.Add(new Points(28, 0));

Path.Add(new Points(27, 0));

Path.Add(new Points(30, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(37, 0));

Path.Add(new Points(42, 0));

Path.Add(new Points(43, 0));

//Sample - beads mixing 1

Path.Add(new Points(44, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(44, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(47, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(44, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(47, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(44, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(47, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(44, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(47, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(44, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(47, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(46, 0));

Path.Add(new Points(44, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(47, 0));

//Sample - Separation 2

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(36, 0, -1, "[MAGON]Waiting for magnet on"));

Path.Add(new Points(37, 0));

Path.Add(new Points(38, 0));

Path.Add(new Points(39, 0));

Path.Add(new Points(40, 0));

Path.Add(new Points(41, 0));

Path.Add(new Points(41, 0, -1, "[MAGOFF]Waiting for magnet off"));

//Washing buffer 1 - collection 2

Path.Add(new Points(23, 0, true)); //New droplet

Path.Add(new Points(22, 0));

Path.Add(new Points(21, 0));

Path.Add(new Points(24, 0));

Path.Add(new Points(25, 0));

Path.Add(new Points(26, 0));

Path.Add(new Points(27, 0));

Path.Add(new Points(30, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(37, 0));

Path.Add(new Points(42, 0));

Path.Add(new Points(43, 0));

//Washing buffer 1 - beads mixing 2

Path.Add(new Points(44, 0));

…

*Sequence is identical to* //Sample - beads mixing 1

*…*

//Washing Buffer 1 - Separation 3

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(36, 0, -1, "[MAGON]Waiting for magnet on"));

Path.Add(new Points(37, 0));

Path.Add(new Points(38, 0));

Path.Add(new Points(39, 0));

Path.Add(new Points(40, 0));

Path.Add(new Points(41, 0));

Path.Add(new Points(41, 0, -1, "[MAGOFF]Waiting for magnet off"));

//Biotinylated Anti-body - collection 3

Path.Add(new Points(3, 0, true)); //New droplet

Path.Add(new Points(4, 0));

Path.Add(new Points(21, 0));

Path.Add(new Points(24, 0));

Path.Add(new Points(25, 0));

Path.Add(new Points(26, 0));

Path.Add(new Points(27, 0));

Path.Add(new Points(30, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(37, 0));

Path.Add(new Points(42, 0));

Path.Add(new Points(43, 0));

//Biotinylated Anti-body - beads mixing 3

Path.Add(new Points(44, 0));

…

*Sequence is identical to* //Sample - beads mixing 1

*…*

//Biotinylated Anti-body - Separation 4

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(36, 0, -1, "[MAGON]Waiting for magnet on"));

Path.Add(new Points(37, 0));

Path.Add(new Points(38, 0));

Path.Add(new Points(39, 0));

Path.Add(new Points(40, 0));

Path.Add(new Points(41, 0));

Path.Add(new Points(41, 0, -1, "[MAGOFF]Waiting for magnet off"));

//Washing buffer 2 - collection 4

Path.Add(new Points(17, 0, true)); //New droplet

Path.Add(new Points(16, 0));

Path.Add(new Points(15, 0));

Path.Add(new Points(18, 0));

Path.Add(new Points(19, 0));

Path.Add(new Points(20, 0));

Path.Add(new Points(21, 0));

Path.Add(new Points(24, 0));

Path.Add(new Points(25, 0));

Path.Add(new Points(26, 0));

Path.Add(new Points(27, 0));

Path.Add(new Points(30, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(37, 0));

Path.Add(new Points(42, 0));

Path.Add(new Points(43, 0));

//Washing buffer 2 - beads mixing 4

Path.Add(new Points(44, 0));

…

*Sequence is identical to* //Sample - beads mixing 1

*…*

//Washing buffer 2 - Separation 5

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(36, 0, -1, "[MAGON]Waiting for magnet on"));

Path.Add(new Points(37, 0));

Path.Add(new Points(38, 0));

Path.Add(new Points(39, 0));

Path.Add(new Points(40, 0));

Path.Add(new Points(41, 0));

Path.Add(new Points(41, 0, -1, "[MAGOFF]Waiting for magnet off"));

//Neutravidin - collection 5

Path.Add(new Points(5, 0, true)); //New droplet

Path.Add(new Points(6, 0));

Path.Add(new Points(15, 0));

Path.Add(new Points(18, 0));

Path.Add(new Points(19, 0));

Path.Add(new Points(20, 0));

Path.Add(new Points(21, 0));

Path.Add(new Points(24, 0));

Path.Add(new Points(25, 0));

Path.Add(new Points(26, 0));

Path.Add(new Points(27, 0));

Path.Add(new Points(30, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(37, 0));

Path.Add(new Points(42, 0));

Path.Add(new Points(43, 0));

//Neutravidin - beads mixing 5

Path.Add(new Points(44, 0));

…

*Sequence is identical to* //Sample - beads mixing 1

*…*

//Neutravidin - Separation 6

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(36, 0, -1, "[MAGON]Waiting for magnet on"));

Path.Add(new Points(37, 0));

Path.Add(new Points(38, 0));

Path.Add(new Points(39, 0));

Path.Add(new Points(40, 0));

Path.Add(new Points(41, 0));

Path.Add(new Points(41, 0, -1, "[MAGOFF]Waiting for magnet off"));

//Washing Buffer 3 - collection 6

Path.Add(new Points(11, 0, true)); //New droplet

Path.Add(new Points(10, 0));

Path.Add(new Points(9, 0));

Path.Add(new Points(12, 0));

Path.Add(new Points(13, 0));

Path.Add(new Points(14, 0));

Path.Add(new Points(15, 0));

Path.Add(new Points(18, 0));

Path.Add(new Points(19, 0));

Path.Add(new Points(20, 0));

Path.Add(new Points(21, 0));

Path.Add(new Points(24, 0));

Path.Add(new Points(25, 0));

Path.Add(new Points(26, 0));

Path.Add(new Points(27, 0));

Path.Add(new Points(30, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(37, 0));

Path.Add(new Points(42, 0));

Path.Add(new Points(43, 0));

//Washing Buffer 3 - beads mixing 6

Path.Add(new Points(44, 0));

…

*Sequence is identical to* //Sample - beads mixing 1

*…*

//Washing Buffer 3 - Separation 7

Path.Add(new Points(46, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(36, 0, -1, "[MAGON]Waiting for magnet on"));

Path.Add(new Points(37, 0));

Path.Add(new Points(38, 0));

Path.Add(new Points(39, 0));

Path.Add(new Points(40, 0));

Path.Add(new Points(41, 0));

Path.Add(new Points(41, 0, -1, "[MAGOFF]Waiting for magnet off"));

//Detection Sample - collection 7

Path.Add(new Points(7, 0, true)); //New droplet

Path.Add(new Points(8, 0));

Path.Add(new Points(9, 0));

Path.Add(new Points(12, 0));

Path.Add(new Points(13, 0));

Path.Add(new Points(14, 0));

Path.Add(new Points(15, 0));

Path.Add(new Points(18, 0));

Path.Add(new Points(19, 0));

Path.Add(new Points(20, 0));

Path.Add(new Points(21, 0));

Path.Add(new Points(24, 0));

Path.Add(new Points(25, 0));

Path.Add(new Points(26, 0));

Path.Add(new Points(27, 0));

Path.Add(new Points(30, 0));

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(36, 0));

Path.Add(new Points(37, 0));

Path.Add(new Points(42, 0));

Path.Add(new Points(43, 0));

//Detection Sample - beads mixing 7

Path.Add(new Points(44, 0));

…

*Sequence is identical to* //Sample - beads mixing 1

*…*

//Detection Sample - Ready to detect

Path.Add(new Points(31, 0));

Path.Add(new Points(32, 0));

Path.Add(new Points(33, 0));

Path.Add(new Points(33, 0, -1, "Ready for detection"));

Path.Add(new Points(34, 0));

Path.Add(new Points(35, 0));

//End

}