MEMORANDUM

To: **All OSFMGs, Sister Hospitals and Reference Laboratory Clients**

From: OSF HealthCare System Laboratory

Subject: Insurance Pre-authorization for Genetic/Molecular Testing

Date: 7/25/17

Dear Valued Submitter,

More and more payers have added authorization requirements if/when ordering genetic/molecular tests for their covered members. In order to comply with the authorization requirements outlined in our patients' benefit plans, OSF HealthCare now requires that the ordering provider secure any needed authorizations for any genetic/molecular test being submitted for testing. This procedural change is to ensure the best outcome and experience for the patient – medically and financially.

Listed below are some of the most commonly ordered genetic/molecular tests to date:

- Chromosomal Microarray – CMACB (LAB2368), CPT 81229
- TPMT Genotype, Blood – GTPMT (LAB3132), CPT 81401
- JAK 2 Exon 12 Mutation Detection – JAKXB (LAB2273), CPT 81403
- 5,10-Methylenetetrahydrofolate Reductase C677T Mutation – MTHFR (LAB2084), CPT 81291
- Factor 2 Prothrombin Gene Mutation – F2PRO (LAB1862), CPT 81240
- Factor 5 Leiden Gene Mutation – F5LIDN (LAB1861), CPT 81241
- PROMETHEUS IBD sgi Diagnostic – GENOR (Mayo FIBDD) (LAB2333) – CPT's 82397 x 3, 83520 x 8, 86140 x 1, 81479 x 4, 88346 x 1, 88350 x 1
- Galactosemia Gene Analysis (14-Mutation Panel) – GENOR (Mayo GAL14) (LAB2333) – CPT 81401-GALT

We have also included a fairly comprehensive table of genetic/molecular tests with CPT code and test description on the pages to follow. This table was originally compiled by eviCore healthcare on behalf of Blue Cross Blue Shield of Illinois, but is **not** an all-inclusive list of genetic/molecular tests. **A general "rule of thumb" to follow for genetic/molecular testing requiring pre-authorization is; CPT codes within the range of 81100 – 81599 and 0001U – 000xU.**

Please contact one of our Client Representatives; Deanna Hibbert 309-624-9138, Sabrina Mullins 309-624-9144 or Raechel Pfahl 309-624-9100, if you have any questions and/or concerns.

Thank you in advance for your time and efforts in obtaining genetic/molecular testing pre-authorizations.

The OSF HealthCare System Laboratory

CPT Code	Test Description
81162	BRCA1, BRCA2 (breast cancer 1 and 2) (e.g. hereditary breast and ovarian cancer) gene analysis; full sequence analysis and full duplication/deletion analysis
81201	APC (adenomatous polyposis coli) (e.g. familial adenomatosis polyposis [FAP], attenuated FAP) gene analysis; full gene sequence
81203	APC (adenomatous polyposis coli) (e.g. familial adenomatosis polyposis [FAP], attenuated FAP) gene analysis, duplication/deletion variants
81211	BRCA1, BRCA2 (breast cancer 1 and 2) (e.g. hereditary breast and ovarian cancer) gene analysis; full sequence analysis and common duplication/deletion variants in BRCA1 (ie, exon 13 del 3.835kb, exon 13 dup 6kb, exon 14-20 del 26kb, exon 22 del 510bp, exon 8-9 del 7.1kb)
81212	BRCA1, BRCA2 (breast cancer 1 and 2) (e.g. hereditary breast and ovarian cancer) gene analysis; 185delAG, 5385insC, 6174delIT variants
81213	BRCA1, BRCA2 (breast cancer 1 and 2) (e.g. hereditary breast and ovarian cancer) gene analysis; uncommon duplication/deletion variants
81214	BRCA1 (breast cancer 1) (e.g. hereditary breast and ovarian cancer) gene analysis; full sequence analysis and common duplication/deletion variants (ie, exon 13 del 3.835kb, exon 13 dup 6kb, exon 14-20 del 26kb, exon 22 del 510bp, exon 8-9 del 7.1kb)
81215	BRCA1 (breast cancer 1) (e.g. hereditary breast and ovarian cancer) gene analysis; known familial variant
81216	BRCA2 (breast cancer 2) (e.g. hereditary breast and ovarian cancer) gene analysis; full sequence analysis
81217	BRCA2 (breast cancer 2) (e.g. hereditary breast and ovarian cancer) gene analysis; known familial variant
81222	CFTR (cystic fibrosis transmembrane conductance regulator) (e.g. cystic fibrosis) gene analysis; duplication/deletion variants
81223	CFTR (cystic fibrosis transmembrane conductance regulator) (e.g. cystic fibrosis) gene analysis; full gene sequence
81225	CYP2C19 (cytochrome P450, family 2, subfamily C, polypeptide 19) (e.g. drug metabolism), gene analysis, common variants (e.g. *2, *3, *4, *8, *17)
81226	CYP2D6 (cytochrome P450, family 2, subfamily D, polypeptide 6) (e.g. drug metabolism), gene analysis, common variants (e.g. *2, *3, *4, *5, *6, *9, *10, *17, *19, *29, *35, *41, *1XN, *2XN, *4XN)
81227	CYP2C9 (cytochrome P450, family 2, subfamily C, polypeptide 9) (e.g. drug metabolism), gene analysis, common variants (e.g. *2, *3, *5, *6)
81228	Cytogenomic constitutional (genome-wide) microarray analysis; interrogation of genomic regions for copy number variants (e.g. bacterial artificial chromosome [BAC] or oligo-based comparative genomic hybridization [CGH] microarray analysis)
81229	Cytogenomic constitutional (genome-wide) microarray analysis; interrogation of genomic regions for copy number and single nucleotide polymorphism (SNP) variants for chromosomal abnormalities
81280	Long QT syndrome gene analyses (e.g. KCNQ1, KCNH2, SCN5A, KCNE1, KCNE2, KCNJ2, CACNA1C, CAV3, SCN4B, AKAP, SNTA1 and ANK2); full sequence analysis
81282	Long QT syndrome gene analyses (e.g. KCNQ1, KCNH2, SCN5A, KCNE1, KCNE2, KCNJ2, CACNA1C, CAV3, SCN4B, AKAP, SNTA1 and ANK2); duplication/deletion variants
81287	MGMT (O-6-methylguanine-DNA methyltransferase) (e.g. glioblastoma multiforme), methylation analysis
81291	MTHFR (5,10-methylenetetrahydrofolate reductase) (e.g. hereditary hypercoagulability) gene analysis, common variants (e.g. 677T, 1298C)
81292	MLH1 (mutL homolog 1, colon cancer, nonpolyposis type 2) (e.g. hereditary non-polyposis colorectal cancer, Lynch syndrome) gene analysis; full sequence analysis
81294	MLH1 (mutL homolog 1, colon cancer, nonpolyposis type 2) (e.g. hereditary non-polyposis colorectal cancer, Lynch syndrome) gene analysis; duplication/deletion variants
81295	MSH2 (mutS homolog 2, colon cancer, nonpolyposis type 1) (e.g. hereditary non-polyposis colorectal cancer, Lynch syndrome) gene analysis; full sequence analysis
81297	MSH2 (mutS homolog 2, colon cancer, nonpolyposis type 1) (e.g. hereditary non-polyposis colorectal cancer, Lynch syndrome) gene analysis; duplication/deletion variants
81298	MSH6 (mutS homolog 6 [E. coli]) (e.g. hereditary non-polyposis colorectal cancer, Lynch syndrome) gene analysis; full sequence analysis
81300	MSH6 (mutS homolog 6 [E. coli]) (e.g. hereditary non-polyposis colorectal cancer, Lynch syndrome) gene analysis; duplication/deletion variants
81313	PCA3/KLK3 (prostate cancer antigen 3 [non-protein coding]/kallikrein-related peptidase 3 [prostate specific antigen]) ratio (e.g. prostate cancer)
81317	PMS2 (postmeiotic segregation increased 2 [S. cerevisiae]) (e.g. hereditary non-polyposis colorectal cancer, Lynch syndrome) gene analysis; full sequence analysis
81319	PMS2 (postmeiotic segregation increased 2 [S. cerevisiae]) (e.g. hereditary non-polyposis colorectal cancer, Lynch syndrome) gene analysis; duplication/deletion variants
81321	PTEN (phosphatase and tensin homolog) (e.g. Cowden syndrome, PTEN hamartoma tumor syndrome) gene analysis; full sequence analysis

81323	PTEN (phosphatase and tensin homolog) (e.g. Cowden syndrome, PTEN hamartoma tumor syndrome) gene analysis; duplication/deletion variant
81325	PMP22 (peripheral myelin protein 22) (e.g. Charcot-Marie-Tooth, hereditary neuropathy with liability to pressure palsies) gene analysis; full sequence analysis
81355	VKORC1 (vitamin K epoxide reductase complex, subunit 1) (e.g. warfarin metabolism), gene analysis, common variant(s) (e.g. -1639G>A, c.173+1000C>T)
81400	Molecular pathology procedure, Level 1
81401	Molecular pathology procedure, Level 2
81402	Molecular pathology procedure, Level 3
81403	Molecular pathology procedure, Level 4
81404	Molecular pathology procedure, Level 5
81405	Molecular pathology procedure, Level 6
81406	Molecular pathology procedure, Level 7
81407	Molecular pathology procedure, Level 8
81408	Molecular pathology procedure, Level 9
81410	Aortic dysfunction or dilation (e.g. Marfan syndrome, Loeys Dietz syndrome, Ehler Danlos syndrome type IV, arterial tortuosity syndrome); genomic sequence analysis panel, must include sequencing of at least 9 genes, including FBN1, TGFBR1, TGFBR2, COL3A1, MYH11, ACTA2, SLC2A10, SMAD3, and MYLK
81411	Aortic dysfunction or dilation (e.g. Marfan syndrome, Loeys Dietz syndrome, Ehler Danlos syndrome type IV, arterial tortuosity syndrome); duplication/deletion analysis panel, must include analyses for TGFBR1, TGFBR2, MYH11, and COL3A1
81412	Ashkenazi Jewish associated disorders (e.g. Bloom syndrome, Canavan disease, cystic fibrosis, familial dysautonomia, Fanconi anemia group C, Gaucher disease, Tay-Sachs disease), genomic sequence analysis panel, must include sequencing of at least 9 genes, including ASPA, BLM, CFTR, FANCC, GBA, HEXA, IKBKAP, MCOLN1, and SMPD1
81415	Exome (e.g. unexplained constitutional or heritable disorder or syndrome); sequence analysis
81416	Exome (e.g. unexplained constitutional or heritable disorder or syndrome); sequence analysis, each comparator exome (e.g. parents, siblings) (List separately in addition to code for primary procedure)
81417	Exome (e.g. unexplained constitutional or heritable disorder or syndrome); re-evaluation of previously obtained exome sequence (e.g. updated knowledge or unrelated condition/syndrome)
81420	Fetal chromosomal aneuploidy (e.g. trisomy 21, monosomy X) genomic sequence analysis panel, circulating cell-free fetal DNA in maternal blood, must include analysis of chromosomes 13, 18, and 21
81425	Genome (e.g. unexplained constitutional of heritable disorder or syndrome); sequence analysis
81426	Genome (e.g. unexplained constitutional of heritable disorder or syndrome); sequence analysis, each comparator genome (e.g. parents, siblings) (List separately in addition to code for primary procedure)
81427	Genome (e.g. unexplained constitutional or heritable disorder or syndrome); re-evaluation of previously obtained genome sequence (e.g. updated knowledge or unrelated condition/syndrome)
81430	Hearing loss (e.g. nonsyndromic hearing loss, Usher syndrome, Pendred syndrome); genomic sequence analysis panel, must include sequencing of at least 60 genes, including CDH23, CLRN1, GJB2, GPR98, MTRNR1, MYO7A, MYO15A, PCDH15, OTOF, SLC26A4, TMC1, TMPRSS3, USH1C, USH1G, USH2A, and WFS1
81431	Hearing loss (e.g. nonsyndromic hearing loss, Usher syndrome, Pendred syndrome); duplication/deletion analysis panel, must include copy number analyses for STRC and DFNB1 deletions in GJB2 and GJB6 genes
81432	Hereditary breast cancer-related disorders (e.g. hereditary breast cancer, hereditary ovarian cancer, hereditary endometrial cancer); genomic sequence analysis panel, must include sequencing of at least 14 genes, including ATM, BRCA1, BRCA2, BRIP1, CDH1, MLH1, MSH2, MSH6, NBN, PALB2, PTEN, RAD51C, STK11, and TP53
81433	Hereditary breast cancer-related disorders (e.g. hereditary breast cancer, hereditary ovarian cancer, hereditary endometrial cancer); duplication/deletion analysis panel, must include analyses for BRCA1, BRCA2, MLH1, MSH2, and STK11
81434	Hereditary retinal disorders (e.g. retinitis pigmentosa, Leber congenital amaurosis, cone-rod dystrophy), genomic sequence analysis panel must include sequencing of at least 15 genes, including ABCA4, CNGA1, CRB1, EYS, PDE6A, PDE6B, PRPF31, PRPH2, RDH12, RHO, RP1, RP2, RPE65, RPGR, and USH2A
81435	Hereditary colon cancer disorders (e.g. Lynch syndrome, PTEN hamartoma syndrome, Cowden syndrome, familial adenomatosis polyposis); genomic sequence analysis panel, must include sequencing of at least 10 genes, including APC, BMPR1A, CDH1, MLH1, MSH2, MSH6, MUTYH, PTEN, SMAD4, and STK11
81436	Hereditary colon cancer disorders (e.g. Lynch syndrome, PTEN hamartoma syndrome, Cowden syndrome, familial adenomatosis polyposis); duplication/deletion analysis panel, must include analysis of at least 5 genes, including MLH1, MSH2, EPCAM, SMAD4 and STK11
81437	Hereditary neuroendocrine tumor disorders (e.g. medullary thyroid carcinoma, parathyroid carcinoma, malignant pheochromocytoma or paraganglioma); genomic sequence analysis panel, must include sequencing of at least 6 genes, including MAX, SDHB, SDHC, SDHD, TMEM127, and VHL

81438	Hereditary neuroendocrine tumor disorders (e.g. medullary thyroid carcinoma, parathyroid carcinoma, malignant pheochromocytoma or paraganglioma); duplication/deletion analysis panel, must include analyses for SDHB, SDHC, SDHD, and VHL
81440	Nuclear encoded mitochondrial genes (e.g. neurologic or myopathic phenotypes), genomic sequence panel, must include analysis of at least 100 genes, including BCS1L, C10orf2 COQ2, COX10, DGUOK, MPV17, OPA1, PDSS2, POLG, POLG2, RRM2B, SCO1, SCO2, SLC25A4, SUCLA2, SUCLG1, TAZ, TK2, and TYMP
81442	Noonan spectrum disorders (e.g. Noonan syndrome, cardio-facio-cutaneous syndrome, Costello syndrome, LEOPARD syndrome, Noonan-like syndrome), genomic sequence analysis panel, must include sequencing of at least 12 genes, including BRAF, CBL, HRAS, KRAS, MAP2K1, MAP2K2, NRAS, PTPN11, RAF1, RIT1, SHOC2, and SOS1
81445	Targeted genomic sequence analysis panel, solid organ neoplasm, DNA analysis, and RNA analysis when performed, 5-50 genes (e.g. ALK, BRAF, CDKN2A, EGFR, ERBB2, KIT, KRAS, NRAS, MET, PDGFRA, PDGFRB, PGR, PIK3CA, PTEN, RET), interrogation for sequence variants and copy number variants or rearrangements, if performed
81450	Targeted genomic sequence analysis panel, hematolymphoid neoplasm or disorder, DNA analysis, and RNA analysis when performed, 5-50 genes (e.g. BRAF, CEBPA, DNMT3A, EZH2, FLT3, IDH1, IDH2, JAK2, KRAS, KIT, MLL, NRAS, NPM1, NOTCH1), interrogation for sequence variants, and copy number variants or rearrangements, or isoform expression or mRNA expression levels, if performed
81455	Targeted genomic sequence analysis panel, solid organ or hematolymphoid neoplasm, DNA analysis, and RNA analysis when performed, 51 or greater genes (e.g. ALK, BRAF, CDKN2A, CEBPA, DNMT3A, EGFR, ERBB2, EZH2, FLT3, IDH1, IDH2, JAK2, KIT, KRAS, MLL, NPM1, NRAS, MET, NOTCH1, PDGFRA, PDGFRB, PGR, PIK3CA, PTEN, RET), interrogation for sequence variants and copy number variants or rearrangements, if performed
81460	Whole mitochondrial genome (e.g. Leigh syndrome, mitochondrial encephalomyopathy. Lactic acidosis, and stroke-like episodes [MELAS], myoclonic epilepsy with ragged-red fibers [MERFF], neuropathy, ataxia, and retinitis pigmentosa [NARP], Leber hereditary optic neuropathy [LOHN]), genomic sequence, must include sequence analysis of entire mitochondrial genome with heteroplasmy detection.
81465	Whole mitochondrial genome large deletion analysis panel (e.g. Kearns-Sayre syndrome, chronic progressive external ophthalmoplegia), including heteroplasmy detection, if performed
81470	X-linked intellectual disability (XLID) (e.g. syndromic and non-syndromic XLID); genomic sequence analysis panel, must include sequencing of at least 60 genes, including ARX, ATRX, CDKL5, FGD1, FMR1, HUWE1, IL1RAPL, KDM5C, L1CAM, MECP2, MED12, MID1, OCRL, RPS6KA3, and SLC16A2.
81471	X-linked intellectual disability (XLID) (e.g. syndromic and non-syndromic XLID); duplication/deletion gene analysis, must include analysis of at least 60 genes, including ARX, ATRX, CDKL5, FGD1, FMR1, HUWE1, IL1RAPL, KDM5C, L1CAM, MECP2, MED12, MID1, OCRL, RPS6KA3, and SLC16A2.
81479	Unlisted molecular pathology procedure
81490	Autoimmune (rheumatoid arthritis), analysis of 12 biomarkers using immunoassays, utilizing serum, prognostic algorithm reported as a disease activity score
81493	Coronary artery disease, mRNA, gene expression profiling by real-time RT-PCR of 23 genes, utilizing whole peripheral blood, algorithm reported as a risk score
81504	Oncology (tissue of origin), microarray gene expression profiling of >2000 genes, utilizing formalin-fixed paraffin-embedded tissue, algorithm reported as tissue similarity scores
81507	Fetal aneuploidy (trisomy 21, 18 and 13) DNA sequence analysis of selected regions using maternal plasma, algorithm reported as a risk score for each trisomy
81519	Oncology (breast), mRNA, gene expression profiling by real-time RT-PCR of 21 genes, utilizing formalin-fixed paraffin embedded tissue, algorithm reported as recurrence score
81525	Oncology (colon) mRNA, gene expression profiling by real-time RT-PCR of 12 genes (7 content and 5 housekeeping), utilizing formalin-fixed paraffin-embedded tissue, algorithm reported as a recurrence score
81528	Oncology (colorectal) screening, quantitative real-time target and signal amplification of 10 DNA markers (KRAS mutations, promoter methylation of NDRG4 and BMP3) and fecal hemoglobin, utilizing stool, algorithm reported as a positive or negative result
81535	Oncology (gynecologic), live tumor cell culture and chemotherapeutic response by DAPI stain and morphology, predictive algorithm reported as a drug response score; first single drug or drug combination
81536	Oncology (gynecologic), live tumor cell culture and chemotherapeutic response by DAPI stain and morphology, predictive algorithm reported as a drug response score; each additional single drug or drug combination (List separately in addition to code for primary procedure)
81538	Oncology (lung), mass spectrometric 8-protein signature, including amyloid A, utilizing serum, prognostic and predictive algorithm reported as good versus poor overall survival
81540	Oncology (tumor of unknown origin), mRNA gene expression profiling by real-time RT-PCR of 92 genes (87 content and 5 housekeeping) to classify tumor into main cancer type and subtype, utilizing formalin-fixed paraffin-embedded tissue, algorithm reported as a probability of a predicted main cancer type and subtype
81545	Oncology (thyroid), gene expression analysis of 142 genes, utilizing fine needle aspirate, algorithm reported as a categorical result (e.g. benign or suspicious)

81595	Cardiology (heart transplant), mRNA, gene expression profiling by real-time quantitative PCR of 20 genes (11 content and 9 housekeeping), utilizing subfraction of peripheral blood, algorithm reported as a rejection risk score
81599	Unlisted multianalyte assay with algorithmic analysis
84999	Unlisted chemistry procedure
0004M	Scoliosis, DNA analysis of 53 single nucleotide polymorphisms (SNPs), using saliva, prognostic algorithm reported as a risk score
0006M	Oncology (hepatic), mRNA expression levels of 161 genes, utilizing fresh hepatocellular carcinoma tumor tissue, with alpha-fetoprotein level, algorithm reported as a risk classifier
0007M	Oncology (gastrointestinal neuroendocrine tumors), real-time PCR expression analysis of 51 genes, utilizing whole peripheral blood, algorithm reported as a nomogram of tumor disease index
0008M	Oncology (breast), mRNA analysis of 58 genes using hybrid capture, on formalin-fixed paraffin-embedded (FFPE) tissue, prognostic algorithm reported as a risk score
0009M	Fetal aneuploidy (trisomy 21, and 18) DNA sequence analysis of selected regions using maternal plasma, algorithm reported as a risk score for each trisomy
0010M	Oncology (High-Grade Prostate Cancer), biochemical assay of four proteins (Total PSA, Free PSA, Intact PSA and human kallikrein 2 [hK2]), plus patient age, digital rectal examination status, and no history of positive prostate biopsy, utilizing plasma, prognostic algorithm reported as a probability score
G9143	Warfarin responsiveness testing by genetic technique using any method, any number of specimen(s)
S3800	Genetic testing for amyotrophic lateral sclerosis (als)
S3840	DNA analysis for germline mutations of the ret proto-oncogene for susceptibility to multiple endocrine neoplasia type 2
S3841	Genetic testing for retinoblastoma
S3842	Genetic testing for von hippel-lindau disease
S3845	Genetic testing for alpha-thalassemia
S3846	Genetic testing for e beta-thalassemia
S3852	DNA analysis for apoe epsilon 4 allete for susceptibility to alzheimer’s disease
S3854	Gene expression profiling panel for use in the management of breast cancer treatment
S3861	Genetic testing, sodium channel, voltage-gated, type V, alpha subunit (scn5a) and variants for suspected brugada syndrome
S3865	Comprehensive gene sequence analysis for hypertrophic cardiomyopathy
S3866	Genetic analysis for a specific gene mutation for hypertrophic cardiomyopathy (hcm) in an individual with a known hcm mutation in the famliy
S3870	Comparative genomic hybridization (cgh) microarray testing for developmental delay, autism spectrum disorder and/or intellectual disability