DECIPHER BLADDER **TURBT**

Decipher Biosciences
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San Diego, CA 92121
Tel 1.888.792.1601 | Fax 1.855.324.2768
customersupport@decipherbio.com | decipherbio.com

DECIPHER BLADDER REPORT

PATIENT DETAILS

Patient Name: Sample Report
MRN/Patient ID: ABC123
Date of Birth: N/A
Date of Prostatectomy: N/A

Pathology Laboratory: Test Pathology
Pathologist: Test Pathologist
Address: Test Address

ORDER INFORMATION

Order Date: N/A
Specimen Received Date: N/A
Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma**
Tumor Grade: **Low Grade**

Date of TURBT: **06/04/2015**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Present**

YOUR DECIPHER RESULT: BASAL SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal	1.1%	Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated	1.9%	Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal	93.2%	Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low	3.8%	Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

Additional Comments: This is an additional comment for a bladder report. This should appear on the final report.

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor s amples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed a nd validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA e xpression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more c ertain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously published schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558).[2]

Medical Director (Signature)
Bashar Dabbas, MD

Report Date

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Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

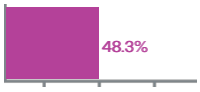
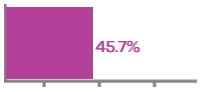
CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma with Carcinoma In-Situ**
Tumor Grade: **Low Grade**

Date of TURBT: **02/17/2016**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Present**

YOUR DECIPHER RESULT: BASAL/BASAL CLAUDIN-LOW SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal		Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated		Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal*		Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low*		Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

*** Mixed Subtype Comments: This patient has a high probability of a Basal subtype tumor. The test result indicates similar probabilities of belonging to Basal and Basal Claudin-Low subtypes, potentially due to tumor heterogeneity. This patient may be considered for cisplatin-based neoadjuvant chemotherapy.**

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor s amples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed a nd validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA e xpression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more c ertain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously publishèd schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558).

Medical Director (Signature)
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Date of Birth: N/A
Date of Prostatectomy: N/A

Pathology Laboratory: Test Pathology
Pathologist: Test Pathologist
Address: Test Address

ORDER INFORMATION

Order Date: N/A
Specimen Received Date: N/A
Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma with Carcinoma In-Situ**
Tumor Grade: **High Grade**

Date of TURBT: **02/17/2016**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Present**

YOUR DECIPHER RESULT: BASAL CLAUDIN-LOW SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal		Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated		Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal		Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low		Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

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Medical Director (Signature)
Bashar Dabbas, MD

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Pathology Laboratory: Test Pathology
Pathologist: Test Pathologist
Address: Test Address

ORDER INFORMATION

Order Date: N/A
Specimen Received Date: N/A
Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma**
Tumor Grade: **Low Grade**

Date of TURBT: **10/15/2015**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Not Identified**

YOUR DECIPHER RESULT: LUMINAL SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal		Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated		Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal		Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low		Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

Additional Comments: This is an additional comment for a bladder report. This should appear on the final report.

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor s amples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed a nd validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA e xpression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more c ertain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously published schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558).[2]

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Pathology Laboratory: Test Pathology
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ORDER INFORMATION

Order Date: N/A
Specimen Received Date: N/A
Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma with Carcinoma In-Situ**
Tumor Grade: **Low Grade**

Date of TURBT: **03/02/2016**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Intermediate**

YOUR DECIPHER RESULT: LUMINAL/BASAL SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal*	46.3%	Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated	1.7%	Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal*	48.2%	Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low	3.8%	Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

*** Mixed Subtype Comments: This test result indicates similar probabilities of belonging to a Luminal and Basal subtype tumor, potentially due to tumor heterogeneity. The clinical significance of this result is unknown.**

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor s amples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed a nd validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA e xpression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more c ertain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously published schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558).[2]

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Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

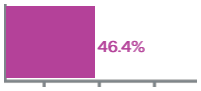
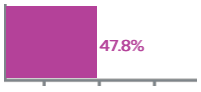
CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma**
Tumor Grade: **Low Grade**

Date of TURBT: **10/15/2015**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Not Reported**

YOUR DECIPHER RESULT: LUMINAL/BASAL CLAUDIN-LOW SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal*		Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated		Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal		Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low*		Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

*** Mixed Subtype Comments: This test result indicates similar probabilities of belonging to a Luminal and Basal subtype tumor, potentially due to tumor heterogeneity. The clinical significance of this result is unknown.**

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Clinic/Hospital Address: Test Address

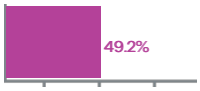
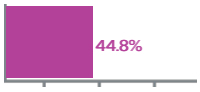
CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma**
Tumor Grade: **High Grade**

Date of TURBT: **02/15/2016**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Intermediate**

YOUR DECIPHER RESULT: LUMINAL/LUMINAL INFILTRATED SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal*		Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated*		Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal		Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low		Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

*** Mixed Subtype Comments: This patient has a high probability of a Luminal subtype tumor. The test result indicates similar probabilities of belonging to Luminal and Luminal Infiltrated subtypes, potentially due to tumor heterogeneity. This patient may be considered for immediate radical cystectomy.**

Additional Comments: This is an additional comment for a bladder report. This should appear on the final report.

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor s amples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed a nd validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA e xpression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more c ertain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously published schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558).[2]

Medical Director (Signature)
Bashar Dabbas, MD

Report Date

Summary of surgical pathology report provided for convenience of Ordering Physician. Please refer to Referring Pathologist's original pathology report to guide treatment decisions.

DECIPHER BLADDER **TURBT**

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Tel 1.888.792.1601 | Fax 1.855.324.2768
customersupport@decipherbio.com | decipherbio.com

DECIPHER BLADDER REPORT

PATIENT DETAILS

Patient Name: Sample Report
MRN/Patient ID: ABC123
Date of Birth: N/A
Date of Prostatectomy: N/A

Pathology Laboratory: Test Pathology
Pathologist: Test Pathologist
Address: Test Address

ORDER INFORMATION

Order Date: N/A
Specimen Received Date: N/A
Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma**
Tumor Grade: **Low Grade**

Date of TURBT: **07/18/2012**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Present**

YOUR DECIPHER RESULT: LUMINAL INFILTRATED SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal		Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated		Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal		Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low		Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor s amples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed a nd validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA e xpression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more c ertain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously published schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558).[2]

Medical Director (Signature)
Bashar Dabbas, MD

Report Date

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DECIPHER BLADDER REPORT

PATIENT DETAILS

Patient Name: Sample Report
MRN/Patient ID: ABC123
Date of Birth: N/A
Date of Prostatectomy: N/A

Pathology Laboratory: Test Pathology
Pathologist: Test Pathologist
Address: Test Address

ORDER INFORMATION

Order Date: N/A
Specimen Received Date: N/A
Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

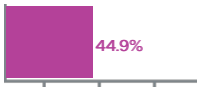
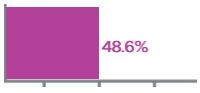
CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma with Carcinoma In-Situ**
Tumor Grade: **High Grade**

Date of TURBT: **07/18/2012**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Not Reported**

YOUR DECIPHER RESULT: LUMINAL INFILTRATED/BASAL SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal		Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated*		Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal*		Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low		Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

*** Mixed Subtype Comments: This test result indicates similar probabilities of belonging to a Luminal and Basal subtype tumor, potentially due to tumor heterogeneity. The clinical significance of this result is unknown.**

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor s amples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed a nd validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA e xpression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more c ertain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously published schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558).[2]

Medical Director (Signature)
Bashar Dabbas, MD

Report Date

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DECIPHER BLADDER REPORT

PATIENT DETAILS

Patient Name: Sample Report
MRN/Patient ID: ABC123
Date of Birth: N/A
Date of Prostatectomy: N/A

Pathology Laboratory: Test Pathology
Pathologist: Test Pathologist
Address: Test Address

ORDER INFORMATION

Order Date: N/A
Specimen Received Date: N/A
Accession ID: N/A
Specimen ID: N / A
Ordering Physician: Test Physician
Clinic/Hospital Name: Test Hospital
Clinic/Hospital Address: Test Address

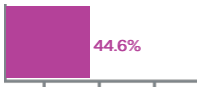
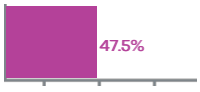
CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma**
Tumor Grade: **High Grade**

Date of TURBT: **06/04/2015**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Not Identified**

YOUR DECIPHER RESULT: LUMINAL INFILTRATED/BASAL CLAUDIN-LOW SUBTYPE

References on reverse

Subtype	Subtype Probability	Interpretation
Luminal		Patients may be considered for immediate radical cystectomy • Favorable prognosis following surgery and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2]
Luminal Infiltrated*		Patients may be considered for immediate radical cystectomy and enrollment into immunotherapy clinical trials • Unfavorable prognosis and may have limited benefit from cisplatin-based neoadjuvant chemotherapy[2,3] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was similar to those with surgery alone[2] • Patients with this subtype have been shown to most likely benefit from anti-PD-L1 immunotherapy in the locally advanced and metastatic setting[4]
Basal		Patients may be prioritized to cisplatin-based neoadjuvant chemotherapy • Unfavorable prognosis but may receive substantial benefit from cisplatin-based neoadjuvant chemotherapy[1,2] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was substantially higher than those with surgery alone[2]
Basal Claudin-Low*		Patients may be considered for cisplatin-based neoadjuvant chemotherapy and enrollment into clinical trials of novel agents • Unfavorable prognosis but may benefit from cisplatin-based neoadjuvant chemotherapy[2,5] • 3-year overall survival for these patients with cisplatin-based neoadjuvant chemotherapy was moderately higher than those with surgery alone[2]

*** Mixed Subtype Comments: This test result indicates similar probabilities of belonging to a Luminal and Basal subtype tumor, potentially due to tumor heterogeneity. The clinical significance of this result is unknown.**

Additional Comments: This is an additional comment for a bladder report. This should appear on the final report.

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor s amples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed a nd validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA e xpression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more c ertain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously published schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558).[2]

Medical Director (Signature)
Bashar Dabbas, MD

Report Date

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DECIPHER BLADDER REPORT

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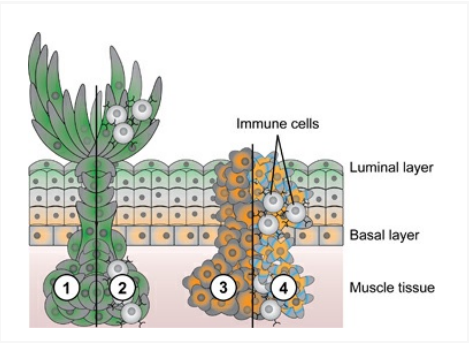
INTENDED USE

Results from Decipher Bladder are intended for use by the physician and patient as an adjunct to conventional clinical variables and models currently used for determining prognosis of patients diagnosed with muscle invasive bladder cancer using FFPE specimens.



SUBTYPE DESCRIPTION

Decipher Bladder uses oligonucleotide microarrays to measure 149 RNA expression biomarkers, extracted from FFPE bladder tumor specimens, to derive probability of a patient tumor sample belonging to each of the four molecular subtypes:

1. **Luminal**
   Luminal tumors originate from the inner surface of the bladder. These tumors are often papillary, growing outwards from the bladder wall into the lumen.
2. **Luminal Infiltrated**
   Similar to Luminal tumors, Luminal Infiltrated tumors originate from the inner surface of the bladder. However, unlike Luminal tumors, these tend to be enriched with immune cells.
3. **Basal**
   Basal tumors originate from cells lining the bladder wall (basal layer) above the smooth muscle surrounding the bladder.
4. **Basal Claudin-Low**
   An aggressive variant of the basal subtype that shows lower expression of claudin genes and increased invasive potential. These tumors are enriched with immune cells, but their anti-tumor function is actively suppressed.

Note: Mixed subtype test results are reported when the difference between the two highest predicted subtype probabilities is within 15%. Indeterminate results are reported when the difference between more than two predicted subtype probabilities is within 15%. This threshold is used to ensure the most accurate subtype classification. In the GSC validation study, mixed subtype test results between any luminal and any basal subtype were observed in 3% of cases (5/145), while indeterminate results were observed in <1% of cases.[2]

3-YEAR OVERALL SURVIVAL PROBABILITIES POST RADICAL CYSTECTOMY

Estimates of 3-year overall survival post radical cystectomy were obtained using the Kaplan-Meier method. The overall survival estimates associated with patients treated with radical cystectomy alone are based on a cohort of 476 patients pooled from 3 cancer centers. Overall survival estimates for patients treated with cisplatin-based neoadjuvant chemotherapy are based on a cohort of 269 patients pooled from 7 leading cancer centers.[2] Note, overall survival estimates reported here reflect a high-risk cohort with >50% clinical stage T3/4 and 30% clinical lymph node stage N1-3.

Estimates of hazard ratios post radical cystectomy were obtained using Cox proportional hazards regression adjusting for clinical risk factors including patient age and gender. Among patients who received radical cystectomy alone, Luminal Infiltrated, Basal and Basal Claudin-Low patients had two- to three-fold increased risk of death compared to Luminal subtype patients. Among those who received cisplatin-based neoadjuvant chemotherapy, patients with a Basal subtype had as favorable an outcome as Luminal subtype patients.

3-YEAR OVERALL SURVIVAL

Subtype	Radical Cystectomy (n=476)*	Cisplatin-based Neoadjuvant Chemotherapy + Radical Cystectomy (n=269)**
Luminal	**76.6%**	**74.7%**
Luminal Infiltrated	**59.4%**	**50.6%**
Basal	**49.2%**	**77.8%**
Basal Claudin-Low	**43.1%**	**57.9%**

*p < 0.0001, **p = 0.0002

REFERENCES

1. Choi W, Porten S, Kim S, et al. Identification of Distinct Basal and Luminal Subtypes of Muscle-Invasive Bladder Cancer with Different Sensitivities to Frontline Chemotherapy. Cancer Cell. 2014;25(2):152-165.
2. Seiler R, Ashab HAD, Erho N, et al. Impact of Molecular Subtypes in Muscle-invasive Bladder Cancer on Predicting Response and Survival after Neoadjuvant Chemotherapy. Eur Urol. 2017:1-11. doi:10.1016/j.eururo.2017.03.030.
3. Kamat AM, Hahn NM, Efstathiou JA, et al. Bladder cancer. Lancet. 2016;388(10061):2796-2810.
4. Rosenberg JE, Hoffman-Censits J, Powles T, et al. Atezolizumab in patients with locally advanced and metastatic urothelial carcinoma who have progressed following treatment with platinum-based chemotherapy: a single-arm, multicentre, phase 2 trial. Lancet. 2016;387(10031):1909-1920.
5. Kardos J, Chai S, Mose LE, et al. Claudin-low bladder tumors are immune infiltrated and actively immune suppressed. JCI insight. 2016;1(3):e85902. doi:10.1172/jci.insight.85902.
6. The Cancer Genome Atlas Research. Comprehensive molecular characterization of urothelial bladder carcinoma. Nature. 2014;507(7492):315-322.
7. Sjödahl G, Lauss M, Lövgren K, et al. A Molecular Taxonomy for Urothelial Carcinoma. Clin Cancer Res. 2012;18(12):3377-3386.
8. Damrauer JS, Hoadley KA, Chism DD, et al. Intrinsic subtypes of high-grade bladder cancer reflect the hallmarks of breast cancer biology. Proc Natl Acad Sci. 2014;111(8):3110-3115.

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DECIPHER BLADDER REPORT

PATIENT DETAILS

Patient Name: **James Tester**
MRN/Patient ID: **00294831**
Date of Birth: **12/04/1979**
Sex: **Male**

Pathology Laboratory: **St Clair Hospital**
Pathologist: **Martha R Clarke**
Address: **Department of Pathology 1000 Bower Hill Road, Pittsburg, PA 15243, USA**

TURBT SPECIMEN ORDER INFORMATION

Order Date: **03/01/2016**
Specimen Received Date: **03/18/2016**
Accession ID: **MC-001536**
Specimen ID: **S16-01731-E1**
Ordering Physician: **Wilson, Jeffrey**
Clinic/Hospital Name: **Sholder & Bordeau Urology**
Clinic/Hospital Address: **1145 Bower Hill Rd Suite 105, Pittsburgh, PA 15243, USA**

CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma with Carcinoma In-Situ**
Tumor Grade: **High Grade**

Date of TURBT: **02/15/2016**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Not Reported**

INDETERMINATE

This test result is indeterminate. The indeterminate results are reported when more than two predicted subtype probabilities are within 15%. In the validation study, these indeterminate results were observed in <1% of the cases.[2] Biological and clinical significance of these cases is unknown.

Please contact our Customer Support Department at 888.792.1601 or customersupport@decipherbio.com with any questions or concerns you may have.

Assay Description: Hematoxylin and Eosin (H&E) slides are microscopically reviewed by a pathologist to identify the optimal area of tumor that satisfies specimen requirements. The selected focus of the tumor is microdissected from the corresponding paraffin block and submitted for testing. Decipher Genomic Subtyping Classifier (GSC), a microarray gene expression assay, is used to classify formalin fixed paraffin embedded (FFPE) bladder tumor samples into one of four molecular subtypes (Luminal, Luminal Infiltrated, Basal and Basal Claudin-Low) based on functional molecular pathways. The GSC has been developed and validated in 305 neoadjuvant chemotherapy and 476 radical cystectomy alone patients from 10 leading cancer centers in North America and Europe. GSC measures RNA expression levels of 149 genes used to calculate multinomial probabilities of the tumor sample belonging to each of the four molecular subtypes. The higher the score, the more certain the sample will belong to assigned subtype. The patient tumor samples are classified as belonging to the subtype with the highest probability. The Decipher GSC molecular subtypes are based on a consensus classification derived from The Cancer Genome Atlas project and other previously published schema.[1,6-8] The GSC has AUCs ranging from 0.85 to 0.97 for classifying a tumor sample into one of the four molecular subtypes in two independent validation cohorts (n=558)[2].

Medical Director (Signature)
Bashar Dabbas, MD

Report Date

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TEST NOT PERFORMED

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PATIENT DETAILS

Patient Name: **Roger Tester**
MRN/Patient ID: **Not Provided**
Date of Birth: **12/04/1970**
Sex: **Male**

Pathology Laboratory: **Desert Valley Hospital Pathology**
Pathologist: **Yvonne Noronha, MD**
Address: **16850 Bear Valley Road, Victorville, CA 92392, USA**

TURBT SPECIMEN ORDER INFORMATION

Order Date: **02/09/2016**
Specimen Received Date: **03/14/2016**
Accession ID: **MC-000754**
Specimen ID: **S15-2130-A10**
Ordering Physician: **Ilbeigi, Pedram**
Clinic/Hospital Name: **Urologic Institute of High Desert 18400A**
Clinic/Hospital Address: **18400 Highway 18 N Ste A, Apple Valley, CA 92307, USA**
Additional Physician: **Wallace, Jordan**

CLINICAL DETAILS

Tumor Type: **Muscle Invasive Carcinoma**
Tumor Grade: **Low Grade**

Date of TURBT: **10/15/2015**
Histology Type: **Urothelial / Transitional Cell Carcinoma**
Lymph-Vascular Invasion: **Intermediate**

TEST NOT PERFORMED

Test not Performed: This is where the TNP reason will go.